Bridge Street, Helena, Montana, 1865

THIS is an actual photograph of Helena, Montana, taken in 1865—a frontier town, populated by rough-and-ready citizens in whose veins flowed the reckless blood of pioneers.

But even here, in this row of gone and forgotten buildings, we see one familiar sight. That is the sign "Drug Store."

It was a funny kind of drug store, as we of today know drug stores. Its supply of drugs was humble. Its facilities for attaining accuracy and precision in the compounding of medicines left much to be desired.

But these early drug stores played a major part in protecting the young communities of the West from an enemy more deadly even than Indians—from *disease*. Pharmacists rode the covered wagons, were "first settlers" in each community, as they are wherever civilization reaches out to blaze new trails.

As we look at this old picture, we're likely to smile condescendingly, in the security of our own superior civilization. Yet our concentrated population groups carry a constant threat of disease and epidemic. The drug store, as a disease-fighting factor, is still—perhaps more than ever, a vital force in every community. And the pharmacist of today must be a man of science with a well-equipped prescription laboratory, as well as a merchant with a well-stocked store.

He must study for years before he can become a pharmacist . . . in order to meet *any* emergency, he must carry a tremendous stock of drugs, some of which he rarely uses . . . he must be ready to fill a prescription, with microscopic accuracy, at almost any time of night or day.

Despite all this, he's seldom wealthy—for the career he has chosen isn't often the road to easy riches. But there are rewards—the chance to alleviate human suffering; the opportunity to have a part in saving human life; the gratitude of the thinking members of his community.

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EDITORIAL

The Plight of the Hospitals

NOT SO many years ago hospitals were used exclusively for the care of the indigent. People who were able to pay a doctor were taken care of in their homes. Then as anesthesia and surgery developed, the hospital became primarily a place in which surgical operations were done both on the indigent and on those able to pay. Gradually as the apparatus and technic associated with medicine became more complicated, the hospital became a central place in which x-rays, physical therapy devices, electrocardiograph and basal metabolic apparatus and laboratory materials could be assembled for use on many patients by many physicians. With the development of nursing as a profession, the hospital also became a center for the training of nurses. Today hospitals have outgrown their infancy and represent a great interest involving many millions of dollars in investment and many additional millions spent annually on their management and care.

In the period of inflation through which the United States passed just previous to the depression, it became customary to build hospitals almost regardless of their primary purpose, which is the care of the sick. They were built rather with a view to supplying social, esthetic, racial, religious and industrial needs, with the medical requirement secondary. Vast sums of money were spent on hospital exteriors and surroundings, and even more money was expended on magnificent corridors, many colored bathrooms, handsomely furnished private suites and other furniture. True, much of the money spent represented contributions by wealthy citizens who wished to bestow their charity in the grand manner; but more recently the money used has been made available by various governmental funds, such as those from the PWA, the Resettlement Administration and other groups. Nevertheless, every dollar thus invested is potentially a dollar that might actually be spent on care of the sick rather than on buildings and equipment.

The first hospitals in the United States were largely of two types: those owned by local, state or federal governments and those owned by individual physicians or private corporations. The privately owned hospital is gradually disappearing, its numbers diminishing every year. Most of the care of those acutely sick in the United States today is accomplished in hospitals of nonprofit, voluntary type, including the institutions built by religious, racial, trade or fraternal groups. When the depression made it difficult for such institutions to keep their pay-beds filled and even more difficult for them to derive from such beds the amount of income formerly available through the use of these services, when at the same time the hospitals found their incomes from endowments and invested funds steadily diminishing and when they found it increasingly difficult, because of the character of the depression, to obtain gifts of additional funds, the voluntary nonprofit hospitals realized that their condition was precarious, to say the least. Demands made on them for charity service also multiplied tremendously, as an increasingly large number of people found themselves unable to pay anything whatever for hospital care.

With a view to aiding the hospitals in this situation, various plans have been adopted on an experimental basis in different parts of the United States. Most prominent perhaps are those concerned with hospital insurance, which involve the building up of a large voluntary membership or clientele among the healthy, with a view to providing them with hospital service when the occasion demands. Such voluntary hospital associations are, of course, a form of insurance in which the individual protects himself by regular monthly payments against a catastrophic bill for hospital service at some later date. It is taken for granted that the majority of those carrying hospital insurance will not require the service frequently enough to place a considerable drain on the resources of the institutions. Unfortunately actual figures are not available, but such figures as are available seem to indicate that while many of these risks are well within the margin of safety, others are hazardous as investments.

ONE of the chief difficulties that has arisen in the development of such schemes has been the manner in which they disturb the relationships between members of the medical profession and the hospitals. Naturally some solicitation is necessary in order to cause individuals to invest in hospital insurance. Such solicitation introduces a competitive commercial element. Even more serious is the attempt in some places to have hospitals control the nature of medical practice by the exploitation of such contracts.

Hindsight is, of course, better than foresight. It is now recognized that hospitals have been built in the past without primary consideration of their economic status and scientific status or the changes which might occur in the future in the nature of medical practice. Today the whole question of hospital service, together with means of payment for hospital care, is being agitated in many places by various interested groups. Undoubtedly gradual evolution is occurring which will eventually result in better distribution of hospitals, more economic management and more surety of support than the hospitals have had in the past. The private hospital, as stated previously, is disappearing. No other agency can take the place of the charitable, sympathetic, public-minded interest that has been elicited by the voluntary hospitals these many years. It would be a pity if new schemes of finance should be permitted to alienate this type of public support from medical institutions.

SPEEDING UP THE CURE OF THE MENTALLY ILL

By FRANK P. BALL

IN THIS LITTLE BUTTON FACTORY, SICK PEOPLE CONVALESCING FROM MENTAL DISORDERS MAY FIND A MEANINGFUL EXISTENCE.

TODAY occupational therapy plays a most important part in the process of recovery of the victims of mental disorders. So important a factor is it that progressive psychiatrists and directors of mental hospitals are constantly testing out new methods for accelerating the cure of their patients.

An interesting and successful experiment was started in occupational therapy over a year ago at a private, state licensed sanatorium, Blythewood, at Greenwich, Conn.

In a setting of stately trees and surrounded by shrubs and colorful flowers there stands on the extensive grounds of this sanatorium a low red building of one story with wide windows and skylights, the Pottery Button Factory. The workers are the mentally ill patients.

THE employees in this little factory are paid for the work they do, and as far as I know there is no other institution of this sort, a private sanatorium, which has gone to the very practical length of paying its "factory hands." In some state hospitals the patients are paid for doing certain work, and their earnings are credited against their upkeep.

There are important reasons back of this buttonmaking and back of this pay roll. The

chief reason is the same one that lies back of all the institution's activities, in sports, recreation and handicraft—that it is good for the patient. When I have called the paying of the workers a practical thing I do not mean practical in the economic sense; that does not count in a place like this. I mean practical in the sense of benefit to the minds of the people who are there for treatment.

To understand the effect in a mental case of this making of buttons and this being paid for it I must go into the processes carried on there. In this little factory are sick people convalescing from mental disorders. The factory director designated them for me by their activities "outside"—an actress, a merchant, a banker, a lawyer, a social leader, an architect, a broker and others. Before a patient becomes a worker in this button factory he is brought in to watch the others at work. Often he is not interested, and he is not urged to work. But soon, and in a large number of cases, he asks to go again, just to watch.

During this visit he is given a piece of clay. Clay is an alluring substance. Few persons can see a piece of pottery clay without wanting to pick it up and do something with it. By the time a patient has become interested in the button factory he is quite normal enough to have the same inclination. He is given a small plaster mold and told to press a piece of clay in it for a moment or two. When he opens the mold he finds he has produced a button with a shank, unpolished and somewhat rough, but a button nevertheless. That's fun and easy. And it's likely he will smile, perhaps chuckle, something he may not have done for a long time. Now he is interested, and it is a safe guess he will ask to join the others as a worker.

The next day when he starts on his job he is taught the other simple processes of pottery buttonmaking, piercing a thread hole in the shank, scraping the "fin," smoothing the top of the button with a wet sponge and sandpapering the underside.

Now the button must be fired, hardened into a real piece of pottery in the kiln. The factory director and his assistant do this, but experienced workers help. When the buttons are fired they come out hard and creamy in color.

The buttons are then sprayed with liquid glaze. This process greatly appeals to the patients, as they watch the glaze cover the kiln-dried buttons. Color is a strange thing. It is a fundamental thing. If we sit all day without moving a muscle we are bound, unless our eyes are closed, to see color. One can refuse to taste or touch, but it is difficult to refuse to see. So color has a big hold on all of us, and sometimes through the mists of mental misery it is color that, hitting on a man's eyes, will rouse him into some faint response. Color has a job to do in the process of bringing the individual back to normal.

Then comes the firing of the glaze. There is excitement in the button factory when the last firing is done and the finished product is taken from the kiln. The buttons are real things now, something so different from crude clay that they are unrecognizable. They are smooth, bright, rosy, blue or green; they gleam; they are hard, useful, worth while and, as a product, perfect. And these workers, whose minds in their sick state have found effort or interest almost impossible, have done it. The patient who has labored over his ten dozen can see a perfect reality confronting him, which he has with his own hands produced. Satisfaction and self respect thrive on this sort of thing, the actual contemplation of one's own efforts. This is a healthy feeling for any one to have; and for persons like these, who have failed in the "outside" world, such a feeling has incalculable value, emotionally and psychologically.

The simplicity and variety of the separate steps in the process of pottery buttonmaking give this type of work an advantage, in a great number of cases, over other occupations for mental patients.

So much for the work itself. Now for the output. This factory operates like any other factory. Samples are made, and a salesman, a member of the sanatorium staff, goes out to show the goods. When orders are received the workers are faced with the necessity of producing the goods. This sounds very usual; but to understand the implications one must try to comprehend the effect on these sick minds of meeting a responsibility coming from the world "outside." Originally these convalescent patients came to this retreat because of a definite inability to carry on normal life, to meet responsibilities. Now as their minds climb up out of the darkness which held them they are asked to meet an obligation, say 500 gross of buttons for a firm in Chicago, something very exacting; more than that, something connected with the "real" life they have left. They are now being linked up in their isolation with the world of normal men. Not only is this fact heartening—and encouragement is of vital importance to minds like these—it is also stimulating. They are to a certain extent a part of that world although for a time physically separated from it.

The aim of all this work is to induce normal reactions, to replace abnormal and inadequate patterns with normal and adequate ones. That is the whole job of mental cure, and the button factory is an exceedingly fertile field for such a growth.

And now we come to the really unusual feature of this sanatorium industry. Both the work itself, with its simple and satisfying processes,

and the orders from "outside" that tie the interest and emotions of these people to the real world they are trying to fit back into are important from the point of view of "cure," but neither ranks in psychologic effect and significance with the iconoclastic practice of payment in wages for work.

HERE are sick-minded patients in the convalescent stage learning to make normal adjustments. How could the curative process be speeded up? The sanatorium offers every kind of outdoor and indoor sport. There are studios and workshops offering all the therapeutic occupations listed in the books of the modern psychiatrist. The patients play as they do "outside." They work and learn to finish what they begin. What was lacking? What common human basis of life was left out in this regimen of work and play? The money basis, that fundamental reason for most of the effort expended in the modern world.

Practically all the patients in real life had been directly or indirectly makers of money. The making of money had motivated the greater part of their normal activities before their entrance into this little world of Blythewood. Owing to the mental and emotional crisis of each life the individual had been forced to give up all activities leading to the making of money. Now a clear way to the restoration of this set of actions and reactions, this giving for valuable work the symbol in the normal world—cash pay—has been introduced by the heads of the sanatorium in the establishment of the Pottery Button Factory and its pay roll.

The psychologic realities of the innovation were obvious. Not only were the patients lured into a normal situation which had been to a large degree an habitual one in their former lives, but they were receiving with their pay checks a warrant of their value in the normal world. They had tangible proof that what they were doing mattered in the world with which they had lost touch. They were making good in that world and were meeting the same results normal people meet when they make good.

THE payment for work capped the whole project of buttonmaking with sense, with conviction, and brought all these patients back to what is the actual foundation of normal living—pay for effort.

These men and women chat and joke like any normal group of workers in which the foreman is not too strict. The atmosphere of the workrooms impresses one with its feeling of keen interest and eager execution. Pottery buttonmaking is a popular occupation at Blythewood, and the owner of the sanatorium and the psychiatrists are strong in their praise of its therapeutic value.

THE PAYMENT THESE PERSONS RECEIVE CAPS THE WHOLE IDEA WITH SENSE; IT BRINGS THEM BACK TO THE ACTUAL FOUNDATION OF NORMAL LIVING —PAY FOR THEIR EFFORT.

"Willie, Pull Your Stomach In!"

By Frank H. Krusen

IT HAS been said that the efficiency of the individual depends to a considerable extent on the way in which the body is used, that in order to develop an efficient body it is essential to instil habits of good posture. It is amazing to note the number of Scandinavians who, on arriving in this country, make as their first observation the statement that the posture of the women is exceedingly poor. The natives of the Scandinavian countries are definitely posture-conscious and are aware of the fact that they may enhance their charm and the beauty of their bodies by assuming correct posture. Americans are not conscious as a nation of the need of good posture.

It is quite possible that numerous vague aches and pains and even quite serious complaints can be attributed directly to faulty posture. One medical expert in body mechanics has written: "We have all observed persons with very poor body mechanics enjoying perfect health, but we must remember that our body is adjusted to compensate for partial deficiencies. We have only to recall how the heart compensates for minor defects and the same compensatory attempts are seen in all parts of the body except in those who are actually dying." You may ask, "Why should we strive to attain good posture?" Because, aside from the possible harmful effects of poor body mechanics, the individual with poor posture presents a picture of dejection and impaired health, and faulty posture is usually associated in the mind of the observer with poor general morale and lack of self respect. On the other hand, an individual with good posture presents a picture of health, vigor, vitality and self respect. According to Dr. F. H. Ewerhardt, other things being equal "an individual with good posture has a better chance of getting a job than one with poor posture."

The matter of poor posture among American children reached such alarming proportions that, in 1932, at the White House Conference on Child Health and Protection a special subcommittee was appointed to study the problem and submit their recommendations. This group of investigators, headed by Dr. Robert B. Osgood of Boston, made some very interesting observations on the prevalence of bad body mechanics (bad posture). They observed that in a group of 1,708 children of both sexes, varying in age from 5 to 18 years, more than 80 per cent had poor or bad posture and less than 20 per cent had good or excellent posture. They further observed that in a recent entering class at a fine private school for boys there were no boys who could be given the grading of excellent and only 10 per cent who could be graded as having good posture. The other 90 per cent had poor or bad posture. In 1928 a health survey made of the school children of Los Angeles revealed that 35,000 children exhibited abnormal postural conditions as compared with 8,000 who had heart defects.

After considering reports such as these the White House subcommittee came to the following conclusions: "We may reasonably believe that perhaps 75 per cent of the male and female youth of the United States exhibit grades of body mechanics which, according to the standards of this subcommittee, are imperfect." The same group found that the parents of this nation were paying little attention to the postures of their children. They stated that from their own observations they felt "warranted in saying that throughout the country the amount of intelligent attention which is being given by parents to the body mechanics of their children is negligible. *The admonition to sit or stand straight more often becomes a negative nag than a positive persuasion.*"

FIVE POSTURE POINTS

- TRY TO STRETCH THE BACK PART OF THE TOP OF YOUR HEAD TOWARD THE CEILING
- WALK WITH YOUR FEET POINTED STRAIGHT AHEAD
- WALK, STAND AND SIT AS TALL AS YOU CAN
- ROLL YOUR HIPS UNDER
- RAISE YOUR CHEST UP

AMERICANS, AS A NATION, ARE NOT CONSCIOUS OF THE NEED OF CORRECT POSTURE.

The last sentence has inspired the writing of this plea to parents to pay more attention to the postures of their children, to urge parents to avoid nagging their youngsters to stand straight, and in lieu of this to learn something about correct body mechanics themselves and then to teach their children good posture by persuasion and encouragement, by desire for emulation and by desire for achievement.

WHAT are the causes of poor body mechanics? There are many contributory causes such as improper chairs, improper clothing, faulty body development, poor nutrition, rickets and various other diseases. However, the main cause of poor body mechanics is *bad postural habits.* The proper method of improving habits of posture is systematically to give the child or adult with faulty habits instruction in correct habits. There are many faulty methods of instruction in proper posture, and parents frequently use incorrect expressions.

One of the most common of the improper commands, and the one which has probably done more harm with regard to foot posture than any other, is the command that mother so frequently gives to little Mary, "Mary, turn your toes out like a lady." This expression has produced faulty posture in innumerable young women. When the toes are turned out "like a lady's" the weight-bearing line which should extend down through the middle of the foot is thrown inward, so that the weight of the body comes directly on the long arch of the foot. The arch begins to break down, the ankle begins to sag in and the knees begin to knock together. Instead of this incorrect command, mothers should say, "Mary, walk with your feet pointed straight ahead and throw your weight forward on the balls of your feet."

THE second faulty command, which father frequently gives to little Willie and often again and again without producing much effect, is, "Willie, pull your stomach in." When Willie attempts to do this he frequently fails to roll his hips back into correct position, and he may exaggerate the sag in the lower part of his back,

which is the real cause for protrusion of the abdomen. The correct command which father should give to little Willie is, "Willie, roll your hips under." Willie, however, may not grasp this command, and it will require some explanation.

The pelvis, or large, ringlike bony structure to which the thigh bones are joined and from which the spine extends upward, is frequently tilted forward because of bad postural habits. If this pelvic bone can be tilted back until it is more nearly level the spine will extend upward from it in a more nearly straight line, and the back will become flat instead of sagging forward. If the child can be taught to contract the buttock muscles downward, so that he pulls down the back of the pelvis, and to contract his abdominal muscles upward, so that he pulls up on the front of the pelvis, he will straighten out his spine, flatten his abdomen and bring this whole portion of his body into correct alinement. It is sometimes difficult to teach children to do this. In the French army, soldiers are taught how to maintain the correct posture of this part of the body by being required to hold a coin between the buttocks. The necessary contraction of the muscles causes the pelvis to roll under into correct position. Little Willie may sometimes be taught the correct position by being told to imagine that he is trying to squeeze sideways through a fence from which a narrow board has been removed and that it will be necessary for him to make himself as thin as possible through the hips in order to get through. Once this rolling under of the hips has been learned the most difficult part of the training in correct habits of posture has been attained.

THE next faulty command that is commonly given is, "Throw your shoulders back" or "Throw out your chest." If a child is told to throw his shoulders back he usually swings them back into a strained and unnatural position which is entirely incorrect; or if he is told to throw out his chest he often produces a more marked sag in the lower part of his back and exaggerates the curvature of the spine in this region. The correct command is, "Raise your chest up." If the child attempts to push his chest straight up in the air toward the ceiling his ribs become more widely separated, his chest comes out in a normal position, the whole spine straightens out in his effort to stretch upward, and his shoulders take care of themselves.

Another faulty command frequently given is, "Pull your chin in." When a child is told to pull his chin in he frequently tilts his head forward and assumes an unnatural position, which from a postural standpoint, is incorrect. The correct command is "Stretch the back part of the top of your head toward the ceiling." When he does this his head comes up to a correct position, his neck straightens out and his chin automatically comes back into correct position. Dr. K. G. Hansson of New York has made an interesting observation with regard to the correct position of the head and neck. He has pointed out that nearly all the abdominal organs are supported by the center of the diaphragm, that the diaphragm in turn is lifted in its center from above by a covering of the heart, that this heart covering (pericardium) is continuous with certain structures in the neck (the cervical fascia), and that when one pulls up the head into correct position, one pulls up on the cervical fascia and in turn pulls up on the pericardium, and thus lifts up the center of the diaphragm and aids in supporting the abdominal organs in correct position. This pulling up on the cervical fascia and straightening of the neck eliminates the tendency to round shoulders and also supports the diaphragm.

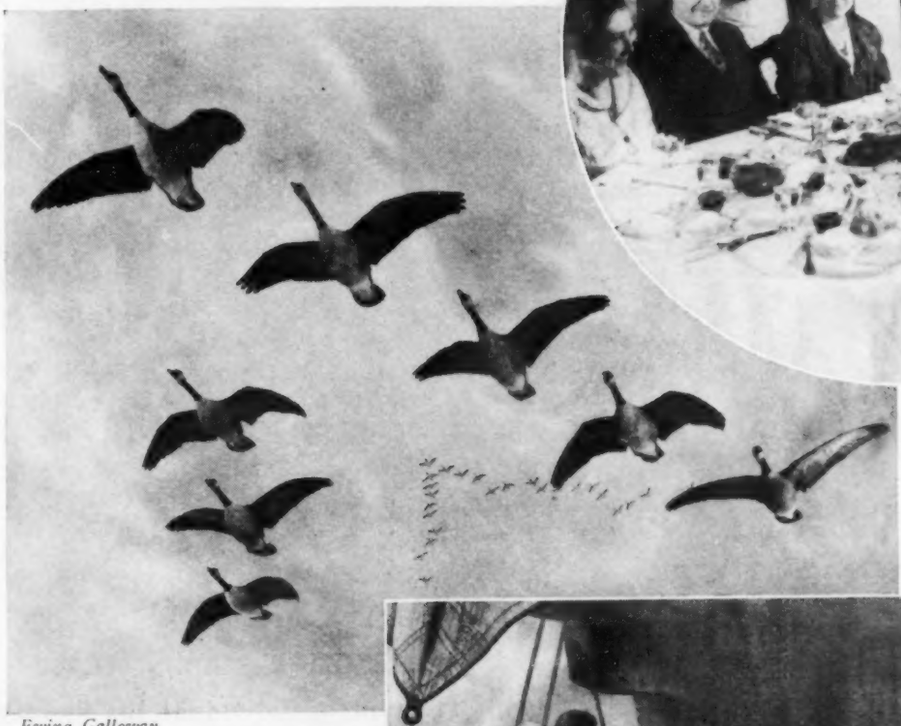
ONE final command should be given: "Walk, stand and sit as tall as you can." To repeat, then, the proper commands to give to a child who exhibits signs of faulty posture are: 1. "Walk with your feet pointed straight ahead." 2. "Roll your hips under." 3. "Raise your chest up." 4. "Try to stretch the back part of the top of your head toward the ceiling." 5. "Walk, stand and sit as tall as you can." These commands properly given, with a few words of encouragement concerning the charm of proper posture as compared to the slovenliness of poor posture, would do much to aid the youth of this land to overcome faulty body mechanics and the attendant ills which may ensue. Above all, the child should never be nagged about faulty posture.

One point which most children as well as adults find encouraging is that made by Cochrane: "If proper posture be maintained by conscious effort for a short time, then the increase of reflex tonus obtained by such posture will serve to maintain the proper attitude without thought and attention." In other words, if little Willie can be convinced of the fact that in order to become a Dizzy Dean or a Babe Ruth he should have good posture, or if little Mary can be persuaded that to be like Helen Wills Moody or like Shirley Temple she must have good posture, and if he or she can then be persuaded to make the conscious effort to follow for a short time the commands already listed, the improved tone of the child's muscles will finally be such that he or she will be able to assume the correct posture without any thought whatever.

It was Milton who wrote "Nature has done her best, do thou thine." To the American father and mother may it be said, "Nature has done her best to give your child good posture, do your part."

Ewing Galloway

Century-Allen



Ewing Galloway

SO ONCE IN EVERY YEAR WE
THRONG
UPON A DAY APART,
TO PRAISE THE LORD WITH FEAST
AND SONG
IN THANKFULNESS OF HEART.

—*Arthur Guiterman*

Century Photos (from a painting by Robert W. Wier)

Building Your Child's Character

By
FRANCIS J. SCULLY

ASSOCIATION AND PLAYING WITH OTHER CHILDREN ARE DESIRABLE AND NECESSARY TO THE CHILD'S FULLEST DEVELOPMENT.

WHEN social standards and values change rather rapidly the problem of character building in children presents a much more difficult problem to the parents. They usually base their teaching on the reactions and standards that they themselves acquired as they grew up, which was at a time when conditions were quite different from those their children must meet today. Often the parents find it difficult to adjust themselves to the new standards and the new order of things which make up the present environment of their children; consequently the children do not always develop that most desirable stability and high type of character.

Adolescence is a period of adjustment. Lifetime habits and points of view are established then. The type of individual, his character and his personality are all bound up in the adjustments he makes during this critical period of his life.

WITH the development of various glandular functions during this period, marked physiologic changes occur in the body. These bring new interests, new desires and new emotions which if not properly balanced by the development of character will make the individual unstable and a misfit in his environment. Adolescence may bring forth unusual and sometimes distressing behavior reactions, but fortunately most of these become adjusted and the individual becomes a normal unit of society.

At present the whole world is in a state of transition. New ideas are being presented every day, and old standards and ideals, to which we have become accustomed, do not always bring an understanding. Even adults find it difficult to keep pace with the times, let alone adjust themselves to the rapid changes. Many do fail and have a nervous breakdown. However, human beings are extremely adaptable, and the future need not be expected to be always confused and chaotic. Ultimately common sense will bring a realization of true values, and we may expect the growing children to find themselves and to develop a philosophy that will enable them to carry on.

There is no doubt that the present uncertainty, the reaction of the war, the effects of the depression, coupled with the natural development of civilization, do present to the adolescent a difficult problem. The past thirty or forty years have seen a surprising development in all the sciences and their adaptation to the uses of mankind. This development has not been without conflict with settled convictions and beliefs. It has always been so. Unfortunately the change is so much more rapid now that there is no time to stop and relax to contemplate the new order of things. The adjustment must be made while we are in the full tide of events, a fact which necessarily has a great influence on the young individual. There has developed a constant demand for action, a restless desire to be doing something. There seems to be no time to think or to value anything, no time to develop a philosophy which will help the individual over the rough and trying times that are sure to come to every one sometime in his life.

Since we cannot stay time and the progressive changes it brings we must find some way to help the developing child, some way to carry him through the transition from childhood to manhood so that he may stand on his own feet and successfully meet the problems that life will bring to him.

What is the best way? Present-day education in schools is excellent as far as it goes, but purely intellectual achievement is not all. Understanding must be developed. There must be a realization of the true value of things and a sympathetic consideration for the rights of others. It will take supervision and example to do this, and the burden falls on the parents more than ever before.

Good character implies a good code of morals and good ethical standards. One must have a sense of pride in honorable and fair dealing and an appreciation of the decent things in life. These may seem old-fashioned standards, but they still hold good today. Too much stress is placed on material things such as fame, adventure, social position and financial success. Sometimes it seems that to become notorious is the main achievement of life. The goal is often more important than the method of attaining it. With envy of such material ideas of success and without the proper standards, criminal tendencies are prone to develop. In fact one has only to read the newspapers to see the number of youthful criminals today who have taken this method of obtaining what they wanted, or what they thought was life's goal. Something has been wrong with their training. Many of them are well educated, but some essential element of their education has been neglected. Their respect for law and for the rights of others has been overshadowed by the glamour of material gain. Material success should not be considered all there is in life, but our newspapers, magazines and movies all present it in glowing colors, even glorifying such achievement. Furthermore, they often sympathize with the criminal and his activities. It is no wonder, therefore, that it seems more desirable to have fine clothes, money and amusement than to develop a fine character and a good philosophy of life. This is particularly true if the material things can be obtained without much effort, even though that effort may be criminal and absolutely without regard for the rights of others.

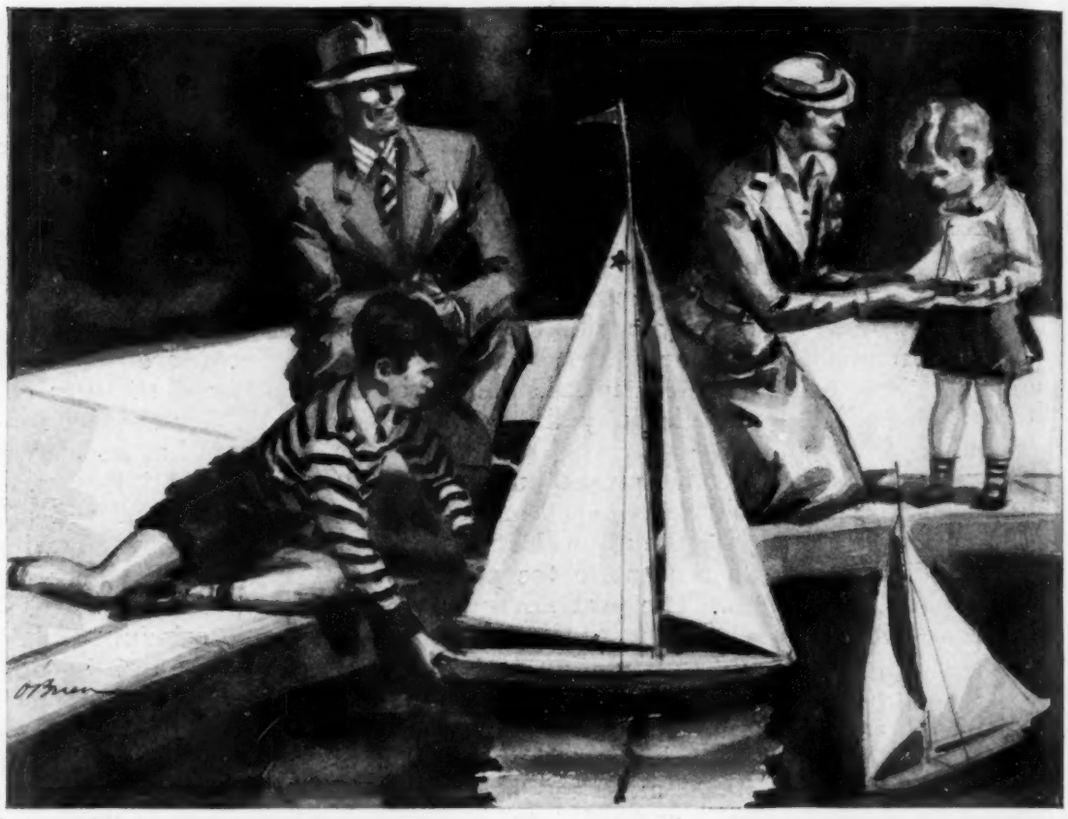
The child should be given standards and ideals that are in accord with the best in his community. It will give him a greater chance for happiness if his views are such that he can live in a manner that will gain the approval of those whom he loves and respects. It will take effort on the part of the parents, for these fundamental ideals and standards will have to be instilled by them during the child's early years. It will require patience and example, not for one day or for one year but throughout the child's entire period of education.

For the fullest development of character, faith is necessary.

First, faith in oneself. One must have the desire to build, with the firm belief that nothing is impossible for one's self. It is a fine thing to look out on the world and feel that one can make a place for oneself and that it can be attained by honest and conscientious effort. This makes for self reliance.

Second, faith in one's fellowman. This is really a fine thing; it develops a sense of duty to others. There is a feeling for cooperative effort, an enjoyment of friendship and pride in civic accomplishment. This develops unselfishness.

Third, faith in the world today. Every one needs to believe firmly that life holds a promise worth striving for, that even though times are in a state of unrest, there is still a chance for honest effort. Life must not become that empty void which settles about one with the restless



BOTH FATHER AND MOTHER OUGHT TO TAKE PART IN THE CHILDREN'S ACTIVITIES; AND THIS INTEREST WILL DEVELOP BETTER RESPONSES TO THEIR REQUESTS.

seeking for new thrills, or hold that blasé feeling that every experience has been tried and that there is nothing new. There must be built up a realization of the better things of life; the world has much to offer one who knows how to look for it and whose training has been such that he can enjoy simple, wholesome things and derive comfort from his achievements. This encourages ambition and develops stability.

FOURTH, faith in God. I do not know of anything that can bring more comfort than that belief, for I have seen what it can do when illness and adversity have brought about conditions almost beyond endurance. In certain respects scientific training and modern ideas may seem to discredit religious teaching; yet it is one of the most stabilizing influences that society has and especially so for the growing individual. This develops reverence.

All these beliefs should be taught by the parents as the child grows up. They help in developing a healthy and normal outlook on life, a conviction that life is worth while even in the hardest times. Life today is by no means as difficult as it was in the pioneer days; but our attitude has changed. Now we want many comforts and luxuries. We almost feel that they are necessary. We do not want to depend on ourselves. Some have even developed a feeling that the state or the government should provide for the individual, and this has taken away initiative and thriftiness. Parents, therefore, must have a spirit of self reliance to be an example to their children. They should teach the child that although the race for fame and fortune is not everything, there are excellent opportunities today for those who honestly try. One must not wait only for the big opportunity or the big chance; it is the utilizing of small opportunities that makes one able to recognize the big opportunity when it comes. By taking up small things early in life one is prepared to handle greater things. He who waits for the big thing only is more likely to run away from it than to accept it for he has not learned to take responsibility. Therefore every child should be taught to do small things well and to take pride in their accomplishment. He will enjoy life more and will be ready for the great opportunity when it comes. Strength mentally, as well as physically, comes only with use.

THE relation of the parents to the child is of the greatest importance. Undue coddling may lead to a sense of inferiority. The parents may think they are helping the child by shielding him from responsibility, but such "protection" leads to marked weakness of character. It is best that the child be taught to make decisions and to abide by them. Undue praise and attention can also be harmful by building up too marked a feeling of importance with the tendency to dominate others. Both of these points of view, if carried to an extreme, will make it difficult for the individual to make an adjustment in his contacts with others as he grows older. The child should have attention; but he should not be made too much the center of the household, nor, on the other hand, should he be neglected. Praise for good work and encour-

agement for well doing are necessary. They are rewards which will lead to better behavior.

The parents should take an interest in their children's affairs, and the father as well as the mother should give attention to and take part in their activities. Their interest will develop a better response to example and to requests. Simply providing a home, food and certain comforts is not sufficient. An effort should be made to make some impression on the child, though it is not necessary to coddle him and to monopolize his whole attention. That might lead to a fixation of his affections on one or the other parent and render it difficult for him later in life to become interested in other people and to adjust himself in his marriage.

Their interest and attention will enable the parents to obtain the child's confidence, so they may learn his views, his problems and his fears. Simply because the child seems to be growing up just as any other child does is no indication that he has no anxieties and worries. By being able to talk things over with the child they can give him correct views on the subjects in which he is interested and about which he is asking questions. But above all, it will enable them to correct the worries and fears that the child may develop. These may not seem to amount to anything, but if not corrected they can leave a lasting and harmful impression which may alter the child's behavior and may change his whole personality.

Moreover, the child should have some voice in the family. His desires should be considered but should not necessarily be given the right of way. Only by discussion can the child be made to see the rights of others. He will develop a consideration for those rights that as things are also due himself. He will have a sense of duty to his home, his parents and to society, and he will be better able to accept responsibility as he grows older.

One child should not be favored more than another. Often the oldest, and not infrequently the youngest, child receives the most attention. The sight of an older child neglected through the parents' interest in a newly arrived member in the family is common; it may even develop habits of stealing and lying which could not be corrected by rigid discipline. The child would take money and spend it on other children, giving him a feeling of importance which he did not have at home. His abnormal behavior was a means of getting attention at home, even though that attention was painful. After the situation was explained to the parents and the child was given his share of their attention and encouragement, there was no further difficulty.

This brings up the question of discipline and punishment. The old idea was that if punishment was not given, the child would be spoiled. That is not necessarily true. A better insight into child psychology and behavior reactions has lessened the need of such drastic measures. However, there are instances in which discipline is necessary, and if it is promised it should be carried out. When threatened punishment is not carried out it develops a disregard for parental correction or even ordinary requests.

Faulty behavior reactions in childhood are often due to nervousness. Correction of nervous habits in the child must start with correction of nervous habits in the parents themselves. When the parents are nervous and excitable, fretful and easily upset with daily problems, the child will early imitate their behavior reactions and respond likewise. Of course, physical causes for such nervousness should be taken care of, if a medical examination reveals their presence. Self control should be taught, but by self control is not meant a repression of all emotional reactions. There should be some outlet, but it should be in a way that will not upset other people and will not violate ordinary social standards. Games, walks and healthy play may serve as an outlet for these emotions as well as aid in the development of self control. It is valuable in all nervous states and particularly helpful in sexual problems the child must face.

Sex education has had much discussion and many advocates in the past few decades. While such education is valuable it should be presented in a frank and open manner that will not set it aside as different from information about other bodily functions. It should be simple and direct, without too much emphasis and without a feeling that the knowledge is secret in its nature. Undue consideration and a suggestion of secrecy may tend to fasten the child's attention on the subject in an unwholesome way. The facts are best presented by the parents. They can be taken up as the child develops understanding and is able to utilize the information given. The subject will have to be gone over time after time, as one cannot hope to make it clear all at one time. The child should be taught to look on these facts as a personal affair not for general discussion but not necessarily a mysterious or shameful subject. Instruction given early makes a lasting impression, and such impressions play a much greater part in determining life habtis of thought and feeling than is generally recognized.

In the child's contact with other individuals, especially in his association with other children, supervision should be exercised to see that he has suitable companions. One child with bad habits can upset the whole plan of training of those with whom he associates. Of course, the child should not be deprived of all contacts with other children because of the possible bad effects that such association might bring. That would be going from *(Continued on page 992)*

Public Safety

TO THE AVERAGE MOTORIST TRAFFIC POLICEMEN ARE A SPECIAL BRAND OF NUISANCE; THEY ARE OUT TO GET HIM AT EVERY OPPORTUNITY.

THE CRUSADE to end the sacrifice of human life through accidents on the highway, in the home and in industry has long since spread beyond national boundaries. The increasing activities of safety groups throughout the world are refreshingly free from politics and racial prejudice. The humanitarian zeal behind the movement is a universal language that is beginning to be heard in the remotest home in the remotest city. Public safety cannot be stampeded into human consciousness. The ideal must grow with increased understanding and education. Man, be he American, European or Oriental, is the key to the problem. Public safety achieves through individual responsibility.

To the one who still asks himself, "Well, what can I do about it?" the National Safety Council in the United States emphasizes the necessity for intelligent awareness and thinking. The thinking individual can do much to prevent an accident. The other percentage is done by those who provide the safest machinery possible, the safest motor car, the safest home. Organized over two decades ago, the council membership represents a group of leading industries intent on throttling down accident tolls; a number of companies writing liability and compensation insurance; a diversified group of local safety councils, chambers of commerce and others who work specifically in the field of traffic. Others of the 4,000 members are safety engineers, editors, teachers and representatives at large. Magazines, letters, posters, bulletins and other printed material do their part: "Stop the slaughter!" The National Safety Council is

A World Ideal

a clearing house for all safety statistics, both encouraging and discouraging. Constant investigation and comparison of safety methods spur new ideas from the old. The results? Accident tolls in many industries throughout the country have been sliced in half or less; some cities have done the same with traffic accidents. Far-sighted cooperation has accomplished in these two fields what is somewhat more difficult as far as home safety is concerned. In a previous article this difficulty was summed up in the familiar phrase, "A man's home is his castle." Here the safety problem is primarily up to the family.

In Great Britain humanitarian forces have likewise taken up arms against indifference, prejudice, ignorance and habit. One unusual group functions under the title of The Order of the Road. King Arthur's knights are indeed riding again. But this time they are riding in motor cars instead of on chargers to do their good deeds. They have pledged themselves, these 3,000 Englishmen, to rescue motorists and motoring. Each member, his own traffic record being unimpeachable, wears his plume on the radiator of his car, in the form of a red and white badge. This is his token of loyalty to the order and the number of years he has availed himself of the title, good driver. An accident, arrest or any failure to uphold the tradition of courtesy on the highway forfeits the badge of honor. Interestingly enough, 86 per cent of the members of the order drove through the year

By ELEANOR EVERET

1934 with never so much as a scratch. It seems that good drivers like recognition.

England's highway code, issued by the Minister of Transport with the authority of the British Parliament, opens in this manner: "In every human activity there is a standard of conduct to which in the common interest we are expected to conform. This Code is the standard of conduct for the road. Respect for the Code and for the spirit underlying it is so much a moral duty that its practice should become a habit and its breach a reproach."

THE story is told of the English mother who once used to caution her son, "Now be a good boy, and Mother will take you to the corner to see the accidents!" But London traffic officials are determined there shall be no accidents to see. Through streets are marked with "black spots," signs which read, "Accident Black Spot: Warning, Pedestrians and Drivers Take Care: City of London Police." Latest figures in 1936 show a decided decrease in accidents as a result not only of the "spots" but of the installation of pedestrian crossings, town speed limits and railed pavements.

Just recently England began a national accident census, aimed to give the Ministry of Transport reliable and comprehensive data regarding the causes of traffic difficulties. The census will consume a year's efforts, gathering full details of every mishap involving serious damage to person or property. From this material, new and improved traffic regulations will be drawn up.

CYCLISTS have been far more of a distressing problem in Britain than in the United States because of their much greater number. One year showed that in 7,200 autocides, some 3,000 of the dead were motorcyclists and cyclists. The National Safety Council estimates that motorcycle and bicycle accidents combined represent only 3 per cent of the annual autocide toll in this country.

Australian traffic rules begin with the following points on the subject of public safety in "Your Code for the Road": "Road sense is the offspring of courtesy and the parent of safety." In the foreword the Hon. Sir Stanley Argyle, K.B.E., premier of Victoria, says, "The control of traffic has become a world-wide problem. One of the major problems is the prevention of accident. It is indisputable that practically the whole of such accidents on public streets and highways are caused through lack of road sense or road courtesy on the part of some person or persons concerned. We must move with the times and educate ourselves in safety principles."

SINCE MUCH OF THE FARM LAND IN SOME COUNTRIES IS HILLY, THE USE OF AGRICULTURAL MACHINERY HAS BEEN RETARDED. SAFETY PROGRAMS STRESS EDUCATION AS TO THE DANGERS INHERENT IN ALL MACHINES WORKED BY HAND OR FARM ANIMALS.

Australia has a land area comparable to that of the United States but a population of under 7 million. Safety workers report that conditions nevertheless exist in the two principal states, New South Wales and Victoria, which create many of the same traffic snarls familiar to large cities in other parts of the world. Pressure is being put on the central government to enact uniform traffic laws.

Genoa, Rome and Milan are already reflecting the keen interest Italy has taken in the problem of public safety. New tunnels, well lighted boulevards, overhead crossings and excellent traffic laws are helping to keep accidents on the downward trend. The Italian police are particularly insistent that pedestrians obey traffic rules implicitly. Italy's industries follow safety programs mapped out by the National Association for the Prevention of Industrial Accidents, which in 1926 was placed under the direct control of the Fascist Government.

Cuba's "Consejo Nacional Para La Prevencion de Accidentes" is an affiliate of the National Safety Council in the United States. The organization grew out of a safety department started by the Cuban Manufacturers' Association.

ACCIDENT prevention on the farms of Europe, says one safety observer, presents a problem as acute as accident prevention in American industry. Since much of the farm land in some countries is hilly and semimountainous the use of agricultural machinery has been retarded. Safety programs stress education of the agrarian populace as to the dangers inherent in all machines worked by hand or by farm animals. Special risks of cattle farming are said to be certain infectious diseases, such as foot and mouth disease, anthrax and swine erysipelas. European farmers have a habit of walking alongside their farm vehicles on the left side. They are a real hazard to the motorcyclists and motorists flashing along the narrow country roads.

The German Traffic Safety Council has more than once emphasized the fact that the individual must be made to assume his responsibility in matters of safety and accident prevention. They claim that traffic cannot move according to hard and fast rules; there must be a fundamental rule of conduct which would serve to clarify specific situations and guide the behavior of those motorists involved. The council has three branches: traffic training, traffic policing, and general research which provides a consistent bird's-eye view of the safety situation in Germany. The visitor to the country may gasp at the first sight of hundreds of bicycles weaving in and out of heavy city traffic. In Munich a careless cyclist is promptly penalized. Cyclists must follow their own traffic lights, and wise pedestrians never argue with them.

As the safety spotlight turns again to America some vital statistics stand out, particularly in the traffic field. Last year approximately 99,000 persons met death by accident in the United States; there were 365,000 permanent disabilities and 9,100,000 temporary disabling injuries. Costs, in medical expense and wage loss, mounted to some $2,350,000,000. The year saw an all time high in motor vehicle accidents, according to official estimates. Motor fatalities, however, increased only 1 per cent as compared to motor vehicle registration and gasoline consumption, which increased 4 and 7 per cent, respectively.

Sixteen states with standard drivers' license laws were able to bring auto fatalities down nearly 2 per cent in 1935; nonlicense states watched an increase of over 2 per cent.

Home fatalities reached approximately 31,500 during 1935. Public deaths other than those due to motor vehicles totaled 17,500.

No wonder that reliable standby, the safety campaign, is again in action. The National Safety Council envisions a reduction in highway accidents of at least 35 per cent by 1940. "There exists a definite formula, based on the successful experience of several cities and states which have brought about sizable reduction in their death rates through planned prevention programs," the council reports.

Evanston, Ill., is one of these cities. An Institute of Public Safety was set up not long ago, sponsored jointly by Northwestern University, the International Association of Chiefs of Police, and the Automobile Manufacturers' Association. This training school, research center and field service agency will cooperate with existing safety agencies as one of its chief purposes. The whole point of the institute is to discover the best practices for highway traffic regulation and engineering and then to spread them over the United States by every means possible. Evanston, by the way, has repeatedly won the national award for accident prevention work.

MILWAUKEE, city of fewest traffic deaths, contributes the novel plan of having the judge of the traffic court decide whether an offender will profit more by instruction, a fine or a jail sentence. If he decides in favor of "school," the offender is sentenced in the regular manner and paroled on condition that he take a traffic school course. The outline of the plan, as submitted to the President's Accident Prevention Conference last April, said, "The school is based on the conclusion that approximately 85 per cent of all accidents result from a wrong mental attitude on the part of the driver. The instructor keeps this thought constantly in mind, and the entire course is aimed at correcting an improper driving attitude."

What the average motorist thinks about traffic laws and those who carry them out is common

knowledge. He feels himself constantly on the defensive. To him, traffic policemen are a special brand of nuisance, out to "get" him at every opportunity. This attitude usually spreads to include the "other fellow" coming along the road. A well known editor reacts to the situation in this way: "It is my view that the continuing slaughter and maiming of human beings is part and parcel of our bewildered, ruthless and unspiritual age. We do not even honor, in practice, the common tenet of all civilized peoples that man's first duty is to protect his neighbor as himself. It is a kind of madness which historians of the future will regard as of a piece with the daredevil spirit of the American people in this age."

Have you ever sat and watched highway traffic on a Sunday afternoon? That mesmeric scene is only part of the pressure for speed and power that envelops the entire world. The search for a thrill in our day is as tenacious as was the lure of gold in the fifties. It fills in the empty spaces of an aimless existence; it is a kind of self indulgence. Men have built great highways and wide boulevards to carry the load of thrill seekers—and contented drivers as well. But still the accidents mount. Why?

THE public needs to be educated. Give a man the newest motor car and the broadest highway, and he may still get into trouble. He is simply unaware of any responsibility to the law or to himself. Tension holds the wheel, and tension dominates his thought. He snaps under the weight of the most trivial circumstance.

It is by no means as easy to teach safety to the public at large as it is to our school children. But the job is well on its way; it has been tackled through the medium of newspapers, radio programs, lectures, civic gatherings, campaigns and a wide distribution of pertinent posters. Safety education from kindergarten through the university and later life should train the individual to adapt himself to the environment that has produced fast moving vehicles, industrial machinery, timesaving inventions—almost, one might say, without warning.

Next year's cars, and the next, will continue to be stronger, more responsive and easier to handle, as far as the Society of Automotive Engineers is concerned. In their recent summer meeting they showed a determination to concentrate their efforts on making automobiles into instruments which man can put to his service without paying too high a price in suffering to himself or to others. "It is just as dangerous to be too far ahead of the public as to be too far behind," one report read. Style, adaptability, comfort and safety will predominate over excessive speed and power in the car of the future.

The individual car owner does his bit toward the cause of public safety by having his car regularly inspected. Brakes, steering wheel, tires, battery and lights demand shipshape order before giving shipshape performance. A defective car is already an accident looking for a place to happen.

When accidents do happen the Red Cross is prepared. A program of first aid training has been arranged whereby skilled first aid care will be available nearer the scene of accident. Highway first aid stations are beginning to dot the country, using such facilities for emergency treatment as wayside stores, tourist homes and gas stations in the rural areas. Cities already have medical care quickly available. One bulletin points out that the Red Cross is committed to the idea that every driver should have first aid training.

Bring public safety out of the theoretical into the factual, and you find its major requirements are these:

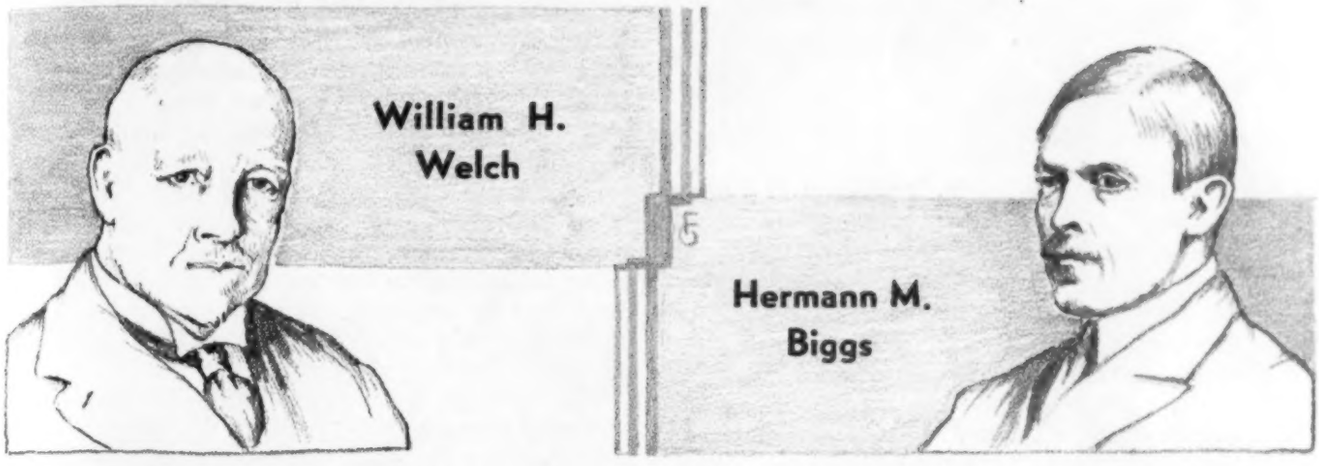
1. Individual awareness and responsibility.
2. Community cooperation.
3. Nation-wide, uniform traffic laws.
4. Cooperation of auto manufacturers.
5. Careful highway planning.
6. Licensed drivers.
7. A cooperative police force.
8. Banishment of habitual offenders from highways.

The first point explains itself. While volumes of printed pleadings may leave the individual unscathed, some little bit of discipline will often make an impression that will be a lasting one. One afternoon a young woman unwittingly drove her car through a stop sign located in an unfamiliar part of the city. A motorcycle policeman caught up with her. It was the first time she had ever been arrested, and she felt the injustice of this incident keenly. She had slowed down to turn the particular corner but had not noticed the stop sign. There was nothing to do but pay the fine the next day. In spite of the "injustice" her eyes somehow caught stop signs and other traffic signs much more easily when she was again on the road. She had found that the law means business.

THE second point involves, of course, the spirit of the phrase, "United we stand, divided we fall." A community can start the ball rolling by organizing safety programs and contests and by supporting the efforts of traffic officials. Safety education in the public schools has already been discussed in a previous article. The third point is such an urgent need that it must haunt the courts and legislatures of the land: uniform traffic laws. Let the whole country have inclusive, up-to-date, sensible traffic laws and govern itself accordingly. Obsolete laws need quick and positive elimination. New ones should stress prevention rather than punishment. And they *(Continued on page 1020)*

Some Vignettes from Tuberculosis History

By
JAMES ALEXANDER MILLER



THE COMPLETE eradication of the disease which at the turn of the twentieth century was leading in causes of death was the dream of four great physicians, and they proceeded to devote either all or part of their careers to its realization.

Tuberculosis is no longer the captain of the men of death, for mortality from this disease is now about one fourth of what it was in their day. This is largely due to the efforts of Drs. William H. Welch, Hermann M. Biggs, William Osler and Edward Livingston Trudeau.

During his long and distinguished life, Dr. Welch became the acknowledged dean of American medicine. Although interested primarily in pathology and bacteriology, he developed a broad understanding of the practical application of the principles of scientific investigation in the fields of public health and medical education. Because his counsel was widely sought in all parts of the world, he acquired a general knowledge of world problems in medicine, furnishing a broad background for his wisdom. This wealth of experience was always at the disposal of sound public health enterprises.

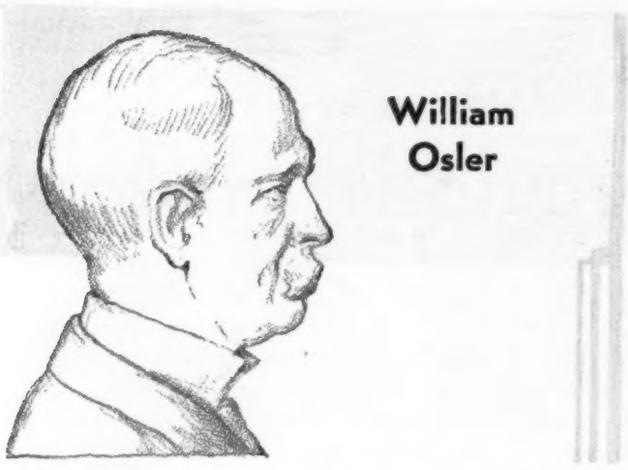
He was a most cultured gentleman. His round face, untouched by any wrinkles, his mild blue eyes and genial smile gave him an almost cherubic appearance; but when he opened his mouth, he uttered the wisdom of Solomon.

To some of us negligent correspondents it may be a comfort to know that with all his remarkable gifts of expression, Dr. Welch maintained an unusual and persistent aversion to writing letters. He claimed that in time all letters answered themselves. Consequently, his desk gradually became a monument of letters, which at intervals was covered with a layer of newspapers on which a new stratum was erected. As the accumulation increased, the pile finally became unmanageably high, and the whole lot was unceremoniously swept into the wastebasket.

This idiosyncrasy is simply a side light on his personality and in no way detracts from the fact that Dr. Welch was a remarkable man and a truly great scientist. He was always deeply interested in the antituberculosis movement and was president of the National Tuberculosis Association in 1910 and 1911. From the time of its organization until his death in 1934, he exercised a powerful influence on the development of the program of the association and the fulfilment of its objectives.

Dr. Hermann M. Biggs was an unusual figure in modern American medicine. He was a clinician and a teacher of great ability, but his most noteworthy achievements were in the field of public health. He was conspicuously successful in this field, at the same time carrying on his large private and hospital practice as well as his medical teaching.

His ability to carry such a heavy load of activities was due in no small measure to his remarkable power of conserving his energies. His speech was invariably quiet and measured; he never became hurried or excited; his mind was quick, but his reasoning was deliberate. He had a sure appreciation of the core of any problem, and nonessentials simply did not exist for him. Once his judgment was formed his decisions were unwavering, and his courage in supporting them was superb. I consider him



William Osler

the wisest man at the council table that I have ever known.

His judgment of men as well as of problems was extraordinary. He developed an exceptionally able personnel in the organization of the New York City Health Department and later in the Department of Health of the State of New York. He made these city and state departments models for all time. Changes of political administration made no difference to Dr. Biggs. He pursued his calm, determined way with the support and cooperation of whatever political party happened to be in power.

Tuberculosis was always one of his prime interests. He instituted compulsory registration for tuberculosis patients for the first time in any large community in the world, against the bitter opposition of the medical profession. He was simply ahead of his time in public health thinking, for this procedure has since been accepted as a regular public health practice.

He took an active interest in the organization of the National Tuberculosis Association and was its second president from 1905 to 1907. He was also a powerful influence in the development of local county health units and sanatoriums. He was always promoting a program for the prevention of disease, and it was he who coined the famous health motto: "Public health is purchasable. Within natural limitations any community can determine its own death rate." The truth of this dictum has been only very slowly realized by government authorities and by the public, but during the past year it has received a notable forward impulse by the provisions of the National Security Act, which will place $20,000,000 a year of additional money at the disposal of the federal public health program. How often may we come to wish that Dr. Biggs were still with us to insure the wise and profitable administration of these great new resources, looking toward the fulfilment of his vision of the eventual control of all preventable disease!

Dr. William Osler, later Sir William Osler, was a dynamic figure in American and British medicine. From his beginnings in Canada he transferred his affiliations first to Philadelphia, then to Baltimore and finally to Oxford, England.

He explained his peripatetic professional habits as a determined policy of mutual advantage to professor and students. But one rather suspects that they were the inevitable result of a restless and insatiable curiosity.

It was while he was in Baltimore at the Johns Hopkins University that he made his greatest contribution to American medicine, and it was during that period that his interest in the National Tuberculosis Association was first aroused. His support was at once a powerful factor because of his outstanding position as a physician and as a teacher.

His personality was scintillating. With his great powers of accurate observation, logical reasoning and cogent expression he exercised a profound influence on the development of medicine in America. It was consequently felt in the national tuberculosis movement in which he took a leading part.

His interests were extraordinarily varied and included many excursions into the field of medical history. He also took great delight in collecting rare medical books.

He had a keen sense of humor which, with his broad culture, made his companionship a great joy to his friends, colleagues and students. However, his love of practical jokes sometimes led him into difficulties. It was responsible for his famous remarks on the desirability of universal chloroforming at the age of 60, a suggestion so widely quoted and so generally misunderstood.

PERHAPS his most inveterate indulgence in this habit was in the impersonation of a certain Dr. Egerton Y. Davis, who was represented to be a physician practicing among the Indians in Canada. This doctor had numerous extraordinary medical experiences, some of which were related in communications sent to medical journals, and one or two of which were published later to the great chagrin of the editors.

Dr. Osler was accustomed to travel under the name of Dr. E. Y. Davis when he wished to avoid publicity, and this mythical personage became a sort of "alter ego" with him.

When I last saw Sir William, on the occasion of a week-end visit with him at Oxford during the war, I attempted to rally him on the identity of Dr. E. Y. Davis, suggesting that perhaps he himself was he. His eyes danced with merriment as he exclaimed: "You don't say. That is a great joke! As a matter of fact I saw the man once, and I suspect that he was a great scalawag!" Then he quickly brought down from his library shelves a number of publications concerning Dr. E. Y. Davis, ran through them with great zest but never once admitted any personal connection with them.

This E. Y. Davis incident is only one of many similar instances of the lighter side of his nature. His vivacity was almost boyish in its enthusiasm, adding greatly to his remarkable charm.

Sir William Osler was an extraordinary man, and his memory will always be green in the annals of medicine.

It was my great privilege to be on terms of intimacy with all these men whom I have mentioned. But my relations with Dr. Edward Livingston Trudeau were unusually close.

He is one of the great romantic figures in American history. To those who enjoy a vivid story well told, I recommend that which is recorded in his own autobiography. But of course he was much more than that. He was a great physician, a true scientist, a philanthropist of great vision, a natural philosopher and above all a man of radiant personality.

UNLIKE the others of whom I have been writing his medical interest was exclusively in the field of tuberculosis. At the very outset of his career he was stricken with this disease, which he fought intermittently all his life. He finally died of it, but not until he had accomplished far more than most of those of robust health.

In 1884 he founded in the Adirondack Mountains the first sanatorium for tuberculosis in this country; it is the beautiful institution which now bears his name. He established the first laboratory for the study of tuberculosis in Saranac Lake the same year. He combined treatment of the disease with scientific investigation from the very beginning, furnishing a model for both, a remarkable and far-reaching achievement.

He became the first president of the National Tuberculosis Association in 1904 and did more than any other one man to place the anti-tuberculosis movement on a sound scientific basis.

But to those who came in contact with him, even his great medical accomplishments paled before the quality of the man himself. Frail but dynamic, firm but sympathetic, animated but profound, intensely human but critically logical, with all his rare gifts and powers, he was as simple and lovable as a little child! His presence was an inspiration, his friendship a benediction! What his life has meant to thousands will never be calculated.

His deep and sympathetic understanding developed through his own experience into a true philosophy perhaps more precious to the soul than life itself, and it was especially extended to those who were doomed to lose their fight for health.

Of these he wrote: "From them I have learned that the conquest of fate is not by struggling against it, not by trying to escape from it, but by acquiescence; that it is often through men that we come to God; that spiritual courage is of a higher type than physical courage; and that it takes a higher type of courage to fight bravely a losing than a winning fight, especially if the struggle from the first is evidently a hopeless one and is protracted for years."

Dr. Trudeau was keenly sensitive to beauty. He loved the woods, the sight of flowers and beautiful women. But it is significant that his favorite work of art was Mercié's statue, Gloria Victis. Of this he wrote: "It typifies many victories I have seen won in Saranac Lake by those whom I learned to love, the victory of the spirit over the body."

Of this victory his own life was a conspicuous example!

What significance may the lives of these four men have for us today?

To the physicians who will finish the task so nobly begun, the memory of these great leaders should bring inspiration to renewed efforts in order to emulate their example. They built surely because they based each step of their program on sound scientific principles. They popularized this knowledge into a vast movement because they were willing to contribute, each from his individual fund of experience, to the common store of knowledge; and thus they extended the influence of their wisdom and their personalities outside the bounds of their personal interests into the community life about them. Thus the horizon of medicine became immeasurably widened, and concrete scientific principles were quickened into a force far beyond the capacity of any one man or group.

The fruits of their labors are being gathered today. Tuberculosis is no longer the captain of the men of death, for mortality from this disease is about one fourth of what it was in their day. But to rest content while thousands are still dying needlessly every year would be unworthy of a great tradition.

Still continuing to build on the foundations laid by these men, modern medicine has within its grasp what to them was only a distant vision; namely, the eradication of tuberculosis from the earth.

CARBON MONOXIDE POISONING

By LEE D. CADY

WOULD THE average citizen be content to live in his home or work around his garage if he were forced to harbor a cageful of rattlesnakes? Either he would have an abiding faith in the security of the snake cage, or he would take sudden steps toward vacating the premises. At any rate he would have little faith in his ability to acquire immunity to snake venom. He has a far greater possibility of that, however, than he has to acquire immunity to white damp.

White damp will not warn its victim as the rattlesnake does before it strikes. It is treacherous and remorseless. It seldom causes pain even at the time the victim is bowled over by it. Pure luck may save the unfortunate person, but he is usually dependent for his life on his neighbors' knowledge of emergency measures.

Before so much was known about the chemistry of gases, miners had names for certain gas hazards incident to their safety. If they were suspicious about the purity of the air in a mine shaft, they would lower a lighted lantern to see what would happen, or they would lower a canary cage and hasten to find out whether the bird were still alive. These precautions were necessary to safeguard the lives of the miners. They could thus estimate in a rough manner the presence of fire damp (methane), white damp (carbon monoxide) or black damp (carbon dioxide).

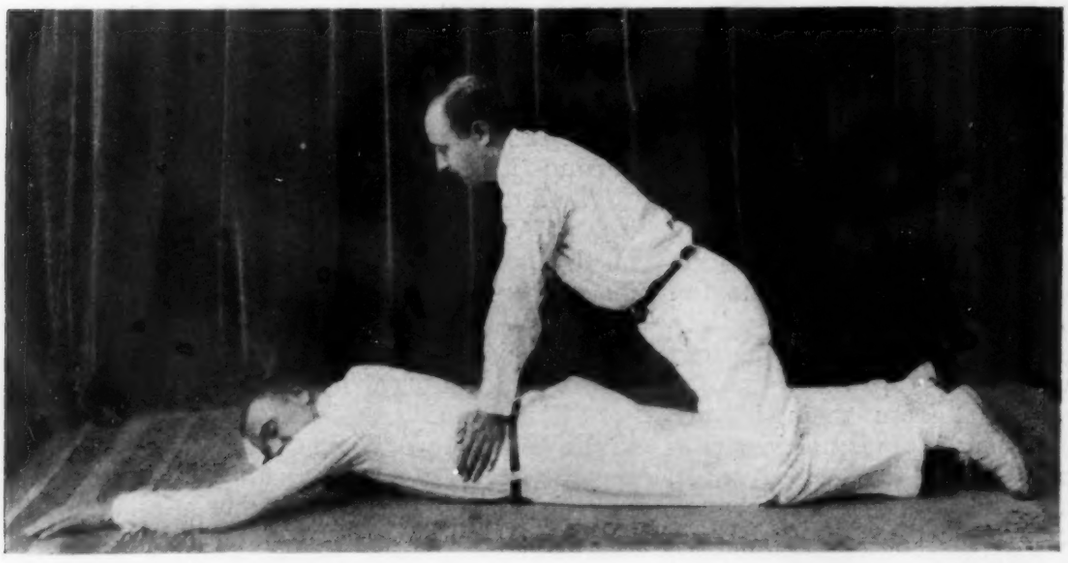
Methane and carbon monoxide will burn when mixed with air or oxygen. Carbon dioxide, which is a normal product of respiration, will not burn. All three gases, if present in sufficient quantities, will cause the suffocation of animals.

There was generally little hazard from carbon monoxide gas until more or less airtight houses were built and were heated with natural or manufactured illuminating gas, which contains a high percentage of carbon monoxide. When gas engines began to be used generally, the number of carbon monoxide asphyxiations increased. White damp moved out of the mine and came right into our homes and garages to live.

Carbon monoxide is a product of incomplete combustion. It is an important component of most of the gases used for household heating and is almost invariably present in the smoke or fumes produced by fire. The gas itself is colorless, odorless and tasteless for all practical purposes. This makes the gas exceedingly dangerous, for the victim has no warning that he is inhaling it. He suddenly slumps down, too weak to help himself to get away to a place where the air is safe to breathe.

The gas is deadly to all red blooded animals. It combines chemically with the hemoglobin, the red oxygen-carrying substance in the blood corpuscles. Oxygen from the air combines loosely with the hemoglobin of the blood while it is in the lungs. The loosely bound oxygen is then carried to the cells of the body and exchanged for the carbon dioxide being formed there. The red cells are rushed back to the lungs where the exchange of gases is reversed. There is nothing irritating or caustic about the carbon monoxide. It kills through oxygen starvation of the tissue cells of the body.

If a sufficient number of important cells die in the brain, the entire body dies. On the other hand, a scientist at one time kept mice alive in an atmosphere of carbon monoxide and oxygen for days. He did this by putting them under



PLACING ONE OF THE PATIENT'S FOREARMS UNDER HIS HEAD, PUT YOURSELF ASTRIDE OF HIM SO THAT YOU CAN LEAN FORWARD WITH STRAIGHT ARMS, AND SO YOUR HANDS WILL FALL NATURALLY ON TOP OF THE LOWER RIBS OF PATIENT.

increased atmospheric pressure. While the carbon monoxide thoroughly saturated the red blood cells, making them absolutely useless for carrying oxygen, the increased pressure dissolved enough oxygen in the fluids of the blood to be entirely adequate for the mouse. This experiment proves two things: The red blood cells' function is almost solely that of carrying oxygen, and carbon monoxide is not poisonous except so far as it interferes with this function.

When the body cells are starved for oxygen and the carbon dioxide is not removed from them, they become acid. Since they cannot tolerate acidity long, they soon die. Furthermore, an acid condition causes swelling, particularly in the brain cells. Many tiny hemorrhages occur from ruptured capillaries, which are the tiniest blood vessels of the body. Therefore even though carbon monoxide may be removed from the blood in time to save life, it may cause serious and permanent injuries to the patient.

Since carbon monoxide is hard to dislodge from the red blood cells it becomes cumulative. A small percentage of carbon monoxide in the air breathed by one person—only from 2 to 3 parts in 10,000—will accumulate in the blood in five or six hours, so that he will feel weak, have a headache and show a flushing of the face. From 5 to 10 parts in 1,000 of air will cause collapse in from two to fifteen minutes. One can understand why the traffic policemen on busy street crossings may have good cause to be red faced and irascible. They are often breathing diluted automobile exhaust gases in sufficient quantity to cause irritability and headache. Carbon monoxide is heavier than air and tends to hug the ground before it is entirely dispersed into the air. The policeman cannot escape it entirely.

If the city fireman is not careful, carbon monoxide may overcome him for the black smoke of a burning building contains about 1 part in 1,000 of air. The fireman must be active and his blood must circulate through his lungs rapidly. If he neglects his own safety he may quickly be overcome.

The exhaust gas of an automobile contains about eight parts of carbon monoxide per hundred. In a two car closed garage enough carbon monoxide will be emitted by one car to cause collapse in from five to ten minutes and death in another five or ten minutes. It is likewise dangerous to work about the lower parts of a running car in a garage which has the door open, for once the carbon monoxide has accumulated in the blood, the workman is likely to become faint and fall to the floor before he can stop the car or get himself outside the garage.

Some of the after-effects of carbon monoxide poisoning are tragic for the patient. Some years ago a man was allowed to work near the broken exhaust pipe of a diesel engine. After an hour or so he felt weak and dizzy and had a throbbing headache. He went outside for a few minutes and then returned to his work. Thirty minutes later he collapsed and was taken to the hospital. After three or four days he returned to work feeling entirely well. Several months later the exhaust pipe became defective again. He objected to continuing with the work there, but the foreman insisted. Again the man collapsed. Unfortunately, he did not make the apparently complete recovery again. The capillary damage of the second gassing was added to the damage done the first time. He recovered sufficiently to go home, but he never worked again. Later his employer was forced to pay him enough to take care of him for the rest of his life.

A hard working, busy housewife had headaches one winter which began about 11 o'clock every morning. Finally her health became impaired so much that she was forced to lie down to rest every afternoon as soon as the children had eaten and gone back to school. The headaches had a tendency to leave by the middle of the afternoon, but they recurred by the time

RELEASE YOUR HOLD ON THE PATIENT'S RIBS SUDDENLY, AND THEN STRAIGHTEN UP. COUNT TWO SLOWLY, AND REPEAT THE PRESSURE.

Courtesy, Chicago Rapid Transit Company.

Artificial Respiration Is Easy

1. Place the asphyxiated person flat on his face. See that his mouth and nose are not obstructed. Place one of his hands or forearms under his forehead, allowing the head to turn to one side.

2. Place yourself astride the thighs of the patient so that when you kneel you can lean forward with straight arms, and your hands will fall naturally over the lower ribs of the patient. Your little fingers should be about even with the patient's lower ribs, and your thumbs should exert pressure along the lower portion of the back.

3. Give artificial respiration by leaning forward, with the elbows and back straight, and exerting pressure on the lower ribs of the patient.

4. Release your hold on the patient's ribs suddenly, and straighten yourself. Count two slowly, and repeat the pressure on the patient's ribs.

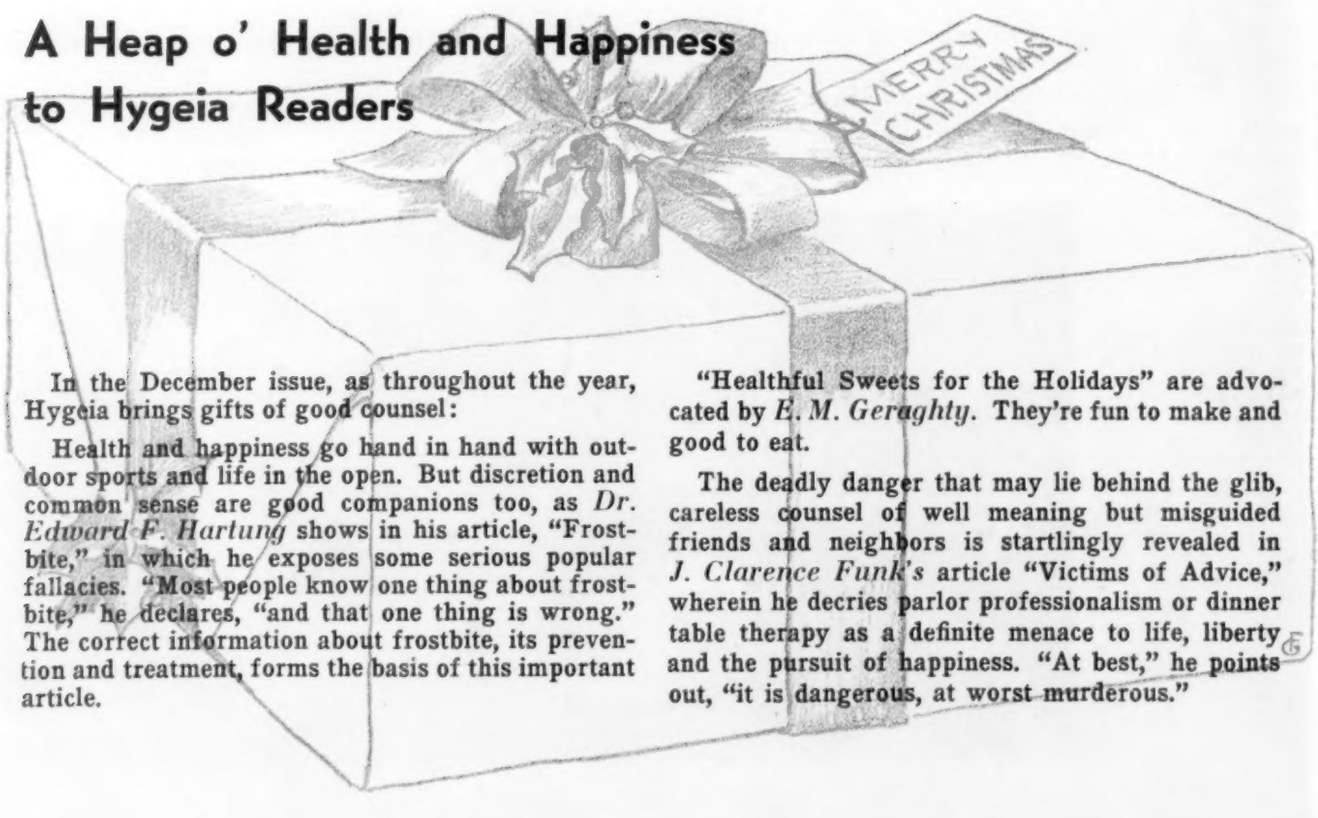
Do not go through these maneuvres too rapidly in your excitement. Fifteen complete movements a minute is quite sufficient. This is approximately the normal rate of breathing. Pumping too much air into the lungs does no more good than getting the right amount into them. Besides, you may tire yourself before somebody arrives who can relieve you.

the evening meal was prepared. She consulted a doctor and took the prescribed medicines but with slight relief. The doctor finally made a diagnosis of defective kitchen gas piping. Her trouble was cured by having a small leak stopped in the gas main of her kitchen range and having some easily arranged ventilators installed.

After rescuing a person who has been overcome with carbon monoxide poisoning, there are several things to be done. First, see that the patient is placed in good air. Second, if the patient is breathing regularly, see that he is kept warm. If breathing is irregular or absent, give him artificial respiration. Third, call the doctor and procure an inhalator if possible. The doctor may give an injection directly into the vein, which may aid in the recovery of the patient.

Never deny artificial respiration to the asphyxiated person because you may think he is already dead. He may not be dead. If you do not know how to give artificial respiration, learn how at once. You may be able sometime to save a life either from carbon monoxide poisoning or from drowning.

A Heap o' Health and Happiness to Hygeia Readers



In the December issue, as throughout the year, Hygeia brings gifts of good counsel:

Health and happiness go hand in hand with outdoor sports and life in the open. But discretion and common sense are good companions too, as *Dr. Edward F. Hartung* shows in his article, "Frostbite," in which he exposes some serious popular fallacies. "Most people know one thing about frostbite," he declares, "and that one thing is wrong." The correct information about frostbite, its prevention and treatment, forms the basis of this important article.

"Healthful Sweets for the Holidays" are advocated by *E. M. Geraghty*. They're fun to make and good to eat.

The deadly danger that may lie behind the glib, careless counsel of well meaning but misguided friends and neighbors is startlingly revealed in *J. Clarence Funk's* article "Victims of Advice," wherein he decries parlor professionalism or dinner table therapy as a definite menace to life, liberty and the pursuit of happiness. "At best," he points out, "it is dangerous, at worst murderous."

It Depends on the Weather

An Article in Which S. R. WINTERS Tells How Climatic Conditions May Affect Life, Health and the Pursuit of Happiness

REVELATION of the ratio existent between climatic environment and human health and progress has been, for the most part, clearly outlined during recent interesting experiments conducted in various quarters. Playing a veritable "cradle-to-the-grave" rôle, the effects of climate actually precede birth and remain a determining factor throughout a natural life span of puberty, settled maturity and on to final demise. Physical stature itself, involving size at birth and rate of subsequent growth, is found to be largely dominated by climate. Moreover, emotional instability as frequently evidenced in suicides and homicides is actuated by weather changes, along with sexual activity and environmental stimulation. In addition, energy level and resistance to infection, which embrace tuberculosis susceptibility as well as known reaction to numerous diseases, are brought within a realm of weather forces sufficient in scope to include either business confidence or decline.

These forces which motivate every phase of human life may be embodied in weather abnormalities, seasonal changes or distinctive characteristics peculiar to locale. Such contributing factors as sharp temperature variations with differences of barometric pressure, weather extremes, solar radiation and storm-area frequency may provide the proverbial "last straw" to frayed endurance or else a buoyancy of exhilaration that often exceeds mental or physical capabilities of the individual.

Working in a limited group which has sought and proved the significance of climatic influence on living, Dr. Clarence A. Mills, professor of experimental medicine, University of Cincinnati, has through his experiments revealed that the affairs of "mice and men" alike are ruled by certain weather conditions and that we are either indebted to or jeopardized by climate.

Employing separate groups of white albino mice for varied tests, Dr. Mills noted that body weight and length were greatly influenced by environment. For instance, specimens subjected to continuous moist heat had exceptionally short, slender bodies, with slightly longer tails. It was observed that rodents adapted to a steady, cool atmosphere increased in weight and length but developed tails shorter than those of the first group. Furthermore, a changeable climate retarded the growth of male mice, but at a later age the animals attained great body and tail lengths. Similarly, a warm, humid environment reduced fertility and resulted in a low percentage of reproduction, small litter size and diminished vigor of offspring. Under the influence of a cool atmosphere, conception was found to bring forth large litters of healthy young with earlier onset of sexual life and fertility than was possible in moist heat.

AS APPLIED to the human side of the balance sheet the similarity is undeniable. In humid regions the young, whether human or animal, are smaller in size with lowered vitality followed by slower development. For example, growth in both height and weight is most rapid in northern United States and north central Europe; it declines slightly at St. Louis, drops sharply for children in Italy and the Philippines and most of all for those in Japan. It is a well established fact that Japanese, Filipinos and Italians raised in the climate of the northern states show a stature and weight decidedly superior to inhabitants remaining in the home land. Moreover, the native child of the Philippines or southern China may be only slightly shorter at birth than the lusty American baby, but he remains much lighter in weight and of more slender build. By the time of puberty the tropical child is outdistanced practically two years according to American standards. The difference is manifest not only in growth but also in the beginning of the menstrual function. Contrary to general belief, statistics prove that girls of the temperate zone mature at an earlier age than their tropical sisters. This delay of maturity shows suppression of growth and development by moist heat, proving that lower temperatures are more conducive to size and early sexual development, with fertility reaching an early peak and then declining more rapidly than in less stimulating zones. Dr. Mills declares, "Nowhere on earth do children grow with such lusty vigor or enter puberty so early as is seen to take place in our states of the Middle West."

According to reports from the *British Medical Journal,* the human race is growing taller and thinner, city dwellers generally being larger than country residents. Recruits and school

children of various foreign countries reveal an increase in average height or weight and sometimes in both.

Data presented by Dr. Mills indicate probability of a direct relationship between temperature change and barometric pressure in North America and mental and emotional stability. Particularly is this true of suicides which are outgrowths of a depressed mental state and homicides resulting from uncontrollable irritation. During a five year period, crises of falling barometric pressure and rising temperature were sharply coincidental with suicide crests. Both suicides and homicides follow in their frequency the general course of storms across the continent. In every instance highest homicide rates are found in the states of the lower plains and in the tornado region of the southwest around Arkansas. Dr. Mills reports: "The homicide rates in the South, both colored and white, are markedly higher than in the North, and probably should be taken to represent the lower level of social inhibition that is universal in the warmer regions of the earth. It is not in the deep South, however, that the rates are highest, but at Kansas City and Memphis, where southern heat and northern storms meet, and where tornadoes are most prone to occur. Along the east coast, where industrialization is most advanced, but where the weather is more stable, both white and colored homicide rates are lowest."

CAREFUL analysis has shown interesting facts regarding human susceptibility and resistance to certain diseases. Conclusions indicate that in the cooler temperate areas, with their greater vigor and energy level, increased vitality and higher resistance to infection prevail to counterbalance a frequency of disease attacks. However, evidences of physical and mental exhaustion from excessive climatic stimulation are sufficiently ominous in these regions to arouse concern in the medical world. Such ailments as diabetes, toxic goiter, pernicous anemia and hypertensive heart disease are a recurring source of worry occasioning more difficulties during the colder, stormy seasons. The effect of climate on the human organism in these sections is comparable to the effect produced on a sensitive motor when its racing speed is maintained continuously at full capacity with ensuing destruction. Climate, as such, is probably not directly responsible for breakdown in function; but rather an insidious exhaustion results from inability to endure the mode of life required in the more rigorous climates.

Diabetes offers a specific example of the effect exerted by climatic urge since the disease is a major medical problem only in regions having invigorating climates. In our own country the mortality rate from this complaint is highest in Iowa and Nebraska; and throughout the northern states, severity and general prevalence of this cause is greater than in the South. Diabetic patients from the North usually find their trouble easier to control on migration to tropical or subtropical regions. Negroes in particular demonstrate increasing severity of the disease toward the North as their death rate rises more sharply than that of the white population. Diabetes in the South and throughout the tropics is generally a mild disease, rarely accompanied by acetone production, in sharp contrast to its characteristics in the Great Lakes area and in New England.

DEATHS caused by pernicious anemia and exophthalmic goiter show the same distribution as do those resulting from diabetes. Evidently these disturbances of metabolism are basically related to climatic drive since they are not common occurrences in districts where existence is more complacent. Special attention is also directed to ailments involving the heart and blood vessels, such as heart failure, arteriosclerosis (hardening of the arteries) and hypertension. There is no doubt that human blood pressure and stress on circulatory mechanism are lower in tropical districts than in stormy, temperate countries. The oriental or tropical individual invariably has a lower blood pressure, together with reduced oxygen consumption and lessened capacities to meet physical emergencies, than has the more active westerner. Americans entering the Orient suffer a marked fall in blood pressure within a year or two despite absence of disease or corresponding changes in mode of living. On the other hand, Chinese or tropical natives migrating to cooler localities show a decided rise in blood pressure. Inhabitants of unstimulating regions disclose a pronounced absence of blood vessel disease with high blood pressure, despite advanced age. Cardiac function is intimately related to energy phases of existence, since each bodily expendi-

ture demands augmented effort from a lowered heart reserve. In cold weather, movements must be more energetic to keep up warmth, and the heart load is correspondingly greater. This explanation accounts for increased cardiac failure in winter months.

During the severe and prolonged summer of 1934 throughout the Middle West, nature staged an impromptu experiment regarding the effect of climate on humanity. In a large proportion of the population, blood pressure fell about 30 per cent, and relief from cardiac symptoms was evident with decline of general body metabolism.

HIGHLY changeable temperatures and pressure of storm zones are generally coincident with a population badly afflicted with arthritic and chronic respiratory complaints. Rheumatic derangements, sinusitis, chronic bronchitis and tuberculosis are more prevalent in such areas as compared to those in which stable conditions of climate prevail.

In contrast is the difference between vitality and resistance in the varied locations, with particular regard to tuberculosis. It has long been a recognized fact that mankind is not equally resistant to the disease in all parts of the world. In our own country this statement is borne out by contrasting the severity of tuberculosis in the Negro with a less fatal course in the white race; even more pronounced is the maximum death rate of Chinese in the United States. Although tuberculosis in China is a serious disease it does not develop into a rapidly fatal course as is common to the Negro population of our northern states. China is a land of settled climate, with even fewer storms than our eastern Gulf states. In spite of a tendency to believe that racial susceptibility enters the picture, a justifiable conclusion indicates that the spread of tuberculosis infection is in some manner connected with climatic vigor, as opposed to race or nationality. Verification is present in a study of tropical and subtropical natives who have been found to possess little resistance to the disease, which ordinarily pursues a rapid course and remains of the childhood type even when present in adults. In view of lessened ability to combat other infections, the determination of tuberculosis reaction is really only natural.

Present discoveries relative to tuberculosis emphasize further the hazards attached to migration from warmer regions endowed with low climatic vigor into storm belts distinguished by intense stimulation. In addition to the increased danger of other afflictions, tuberculosis among Southerners, both white and black, in their home states is not such a problem as that presented among those migrating northward where climatic stimulation is probably the most intense on earth. In a study of the disease in more than 3,000 cases in the Hamilton County Tuberculosis Sanatorium, Dr. Mills observed that residents who were born in the South succumbed much more quickly than did northern inhabitants. Negroes born in Georgia and Alabama endured nine months, while native Cincinnati Negroes lived seventeen months. White patients from the same states withstood ravages of the disease for eleven months, as contrasted to twenty-two months among northern-born. An identical parallelism was apparent in European emigrants from Mediterranean countries contrasted to those from the British Isles and west central Europe.

Not all diseases, however, bear the same relation to climatic conditions as does tuberculosis. In direct opposition, a strong tendency toward increased mortality rates of acute nephritis (Bright's disease) has been noted in regions of moist heat while minimum death rates prevail in more stimulating sections. In somewhat the same way, leprosy is found more destructive in areas of moist warmth, and removal to altitudes above 5,000 feet affords definite relief from the disease. During centuries of the leprosy scourge in Europe, world temperatures are believed to have been greatly elevated. This being the case, it is not entirely inconceivable that leprosy may again become a health menace since world temperatures have risen for the past eighty years and probably approximate the level prevailing during the Middle Ages.

EPIDEMICS of acute appendicitis in various districts have occasioned investigation and offer striking examples of climatic relationship. Although the timing and frequency of attacks seem related to storm pathways, as with respiratory infections, the fatality rate falls toward the northern zone where case occurrence is greatest.

Nor is man's response to his environment of climate concerned only with matters pertaining to health. Definite proof is obtained that busi-

ness activity in general is dependent on the effects of weather conditions. Two abnormalities are equally depressive in the form of temperature variability or drop in storm occurrence and unseasonably high temperatures. Either of the factors alone may have a depressing effect on man and business, but a combination of the two produces most serious results. A majority of our economic depressions of the past sixty years have been preceded by high temperatures and a lack of storms that bring about reduction in human energy. If prolonged for several months, periods of depressive weather induce a decline in physical and mental vigor of the population, which in turn becomes more conservative toward all activities.

On the other hand, prolonged cycles approaching the optimum for human activity result in excess energy, remarkable business development and overexpansion, certain to produce a subsequent decline. Apparently, then, business stability is maintained best during normal weather levels. Forces behind weather abnormalities remain a problem for scientific solution, but variations in intensity of solar radiation appear as a probable source.

Avoidance of an almost intolerable climatic dictatorship seems discouragingly remote at present, although introduction of modern air conditioning provides definite aid in more complete control of indoor atmosphere. Dr. Mills believes that hospitals, in particular, may come literally to "plan the weather" for their patients and supply any type of artificial climate desired for specific treatment.

For average citizens, however, complete climatic control is scarcely possible; and like the legendary Pied Piper of Hamelin, weather sounds the keynote that leads to happy fulfilment or an untimely extinction.

BUILDING YOUR CHILD'S CHARACTER

(Continued from page 977)

one extreme to another and might lead to a bashful shyness because no opportunity had been provided to develop a sense of ease in the presence of others. Such isolation might also lead to daydreaming and a self consciousness that would easily unfit the individual for the responsibilities of life. A sane attitude must be taken. Association with other children is desirable and necessary, but it must be properly directed and controlled. If the child has acquired high standards he will select for his associates those whom he can respect and who will help him to maintain his own self respect.

In a discussion of mental hygiene the effects of general bodily health on mental processes should be considered. It was formerly thought that a healthy body meant a healthy mind. This is not necessarily true. However, there is no doubt that a healthy body will do much to help the mind function more normally and maintain a wholesome outlook on life.

When the child goes to school the fundamental ideals that he has been taught at home will be the guide for his conduct. The parents must not expect too much of the school and the teachers in building up his character. The main objective of the school training is to present to the child a general knowledge of the world. However, the school is the crucible wherein will be tried the standards which have been acquired at home. If the proper example has been given and if high standards have been strongly impressed on the child there will be no difficulty in this new environment and in his contacts with others.

At present I believe too much stress is being placed on the value of so-called higher education. Not every individual is fitted for intensive training in literature, arts and the sciences or for professional work. Some would be much better off, after completing high school, to have some technical training in the field for which vocational tests have shown the individual to be adapted. Too many children are made to go on in fields where they have no interest, mainly to satisfy the ambition of their parents. While attendance in college may have some advantages for its social value it is primarily a place of learning for serious students. There are better places for purely social training. Education should have a definite objective and a goal toward which the student's efforts should be directed. Otherwise, an aimless course of study will lead to an aimless interest in his life's work.

From what has been said it will be seen that the character of the child will depend on his home training, his relation to his parents, the examples they have given him, their control and supervision of his activities and the development of a sane point of view of himself in relation to other members of society. The child is born with a definite mental equipment, but his character and personality all depend on the environment that is created and controlled by his parents. The great responsibility is theirs, not that of the teacher, the school or society. The parents must have vision to see the new ideas of today and patience and perseverance to pass on to their children the best standards of yesterday.

Winter Insects Versus Health

By GEORGE H. SKINNER

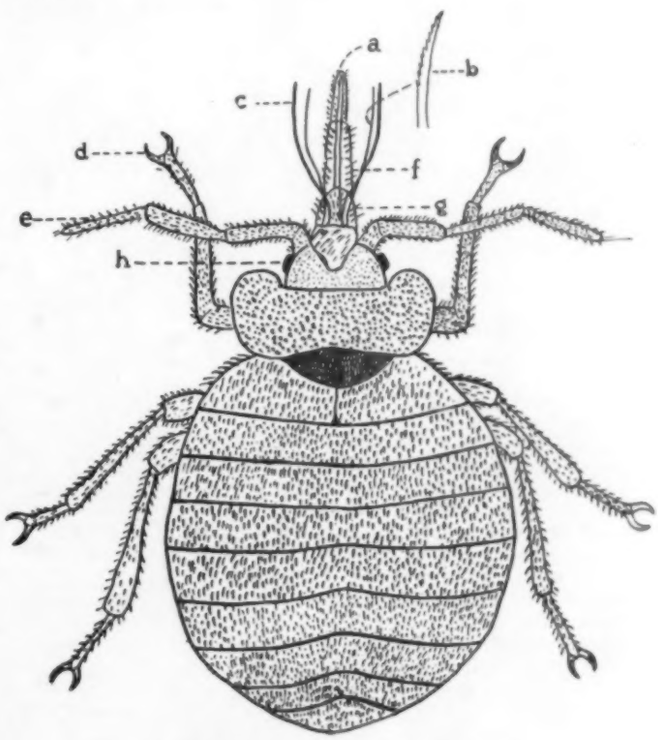
IN THE northern countries sometimes a sigh of relief is heaved when the cold weather arrives for with the advent of frost most of the insects disappear. All these pests appear to have vanished completely; yet there are many that have only changed their location from the outside to the inside of the homes where they continue to pursue their irritating and sometimes destructive activities.

Naturally the good housekeeper will resent the implication that there are "bugs" in her home, and usually there are none. But with insects all around trying to enter, and having an uncanny ability to locate unsuspected portals even in the tightest of houses, it is not surprising that occasionally such insects do find attractive lodgings in the home. Also, since so many pets live in close association with people, and since these pets are favorite habitations of a variety of insects, even the greatest care will not prevent the possibility that such pets will bring in some of these insect pests. Therefore we must always be on guard if we would keep our homes even relatively clear of insects. With their multiplication being as rapid as it is, and with their advent unchecked, it will not be long before multitudes develop, as insects require only a favorable temperature, moisture and food to reproduce with great rapidity. Such conditions are found almost ideally in modern clean, comfortable homes, and so it is necessary to wage a never ending war against insects even in winter. Seasons mean nothing to bugs, if they can find suitable environment.

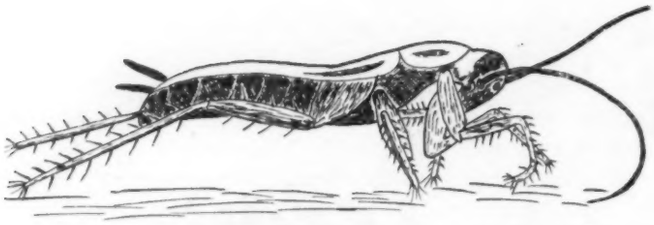
Probably the pet aversion of every housewife is the cockroach. But while this visitor is liable to be the most in evidence, many others are certain to be found at times. Thus bedbugs, lice, fleas, moths and sometimes a few flies and ants will seem to develop spontaneously. Spiders we seem to have always with us, for their webs will be found in any corner that is occasionally overlooked. The thousand legs and silverfish have an exasperating way of appearing at most unexpected times and places.

It is probable that most housewives are familiar with these insects and their habits; yet entomologists are constantly studying them and uncovering new facts. Hence a review of the life histories and the methods of destroying some of these pests may prove of interest, since it is now known that such insects not merely are annoying pests but are likely to carry the germs of serious diseases and may be a potential danger of real proportions at times.

IN THE homes of today there is a feeling of shock and horror if a bedbug is discovered. If the standards of cleanliness are lowered only a little, these despised insects will soon be found, and no problem is more difficult in hospitals and hotels than keeping the premises free from them.



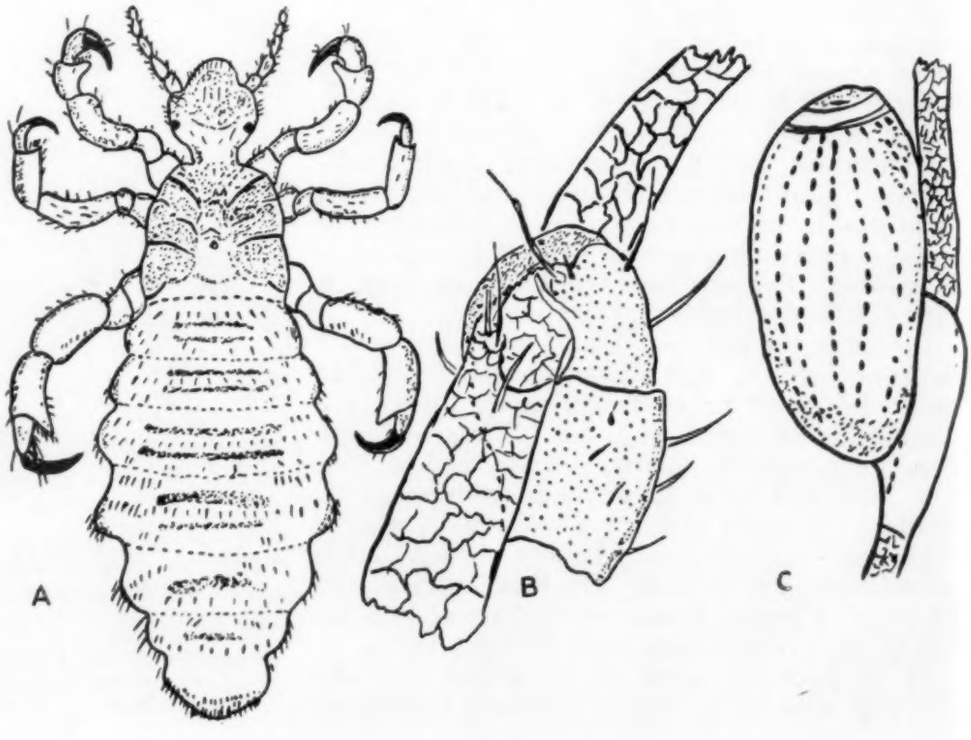
THE BEDBUG'S HEAD IS COMPOSED OF (A) FOOD CANAL; (B) END OF LOWER JAW, SHOWING A TYPICAL AND EFFICIENT SAW BY WHICH THE VICTIM'S SKIN IS OPENED; (C) UPPER JAW; (D) CLAW; (E) FEELER OR ANTENNA; (F) PROBOSCIS, WHICH FOLDS UP WHEN NOT IN USE; (G) HEAD AND (H) EYE. GREATLY MAGNIFIED.



THE COCKROACH, OR CROTON BUG, IS BUILT LIKE A RACE HORSE AND IS ONE OF THE FASTEST MOVING OF ALL INSECTS. THE SPINES ON THE LEGS FACILITATE THE CLINGING OF FILTH AND THE TRANSFERRING OF IT TO FOOD. THE LONG AND MOBILE FEELERS MAKE IT POSSIBLE FOR HIM TO FIND THE FOOD READILY. HE CAN HIDE IN SMALL CREVICES.

When the life history of bedbugs is studied it can readily be seen how they will occasionally reach the homes of the most fastidious and cannot always be entirely excluded from hospitals and other places that must accept emergencies from all classes of society. These insects are primarily parasites of man, although they will feed on other warm blooded animals if necessary to maintain life. Mice, chickens or birds may at times support them. They will survive for months without food and can hide in exceedingly small spaces on account of their flattened bodies. They readily survive under loosened wallpaper, cracks and crevices in sleeping rooms, in old wooden bedsteads, folds in mattresses or bedding and even in clothing. Eggs are to be found in a corresponding variety of locations. These eggs, pearly white when new, quickly change to yellow. The female produces two or three eggs a day until she may have laid as many as 500, though the average is about half that number. When first hatched, the young resemble the adults, except for size. They pass through several changes and reach maturity in about thirty days. If conditions are unfavorable this period may be much longer. Bedbugs are found in all parts of the world, and wherever there are poor sanitary conditions these bugs will abound. They are great travelers and readily pass from one person to another in crowds, since they frequently inhabit clothing. While they are classed as nocturnal in habit, daylight does not stop them when they are hungry, which is most of the time. Their spread is almost entirely by human agencies. But they are also good stayers, and if a summer cottage becomes infested, the bugs will probably be there waiting for the return of the visitors next season. In the meantime they may have found mice to supply them with food, or they may have just stayed hungry. They have been known to exist a year without food.

THE bite of the bedbug is inflicted by a remarkable apparatus. He does not bite but saws his way through. The bug injects a secretion into the wound that prevents the blood from clotting; then he sucks rapidly. This injected substance is extremely irritating to some persons and causes serious disturbances at times. Others do not react to it at all. There is now little doubt that bedbugs transmit disease, and tularemia is one that has been traced to them. Undoubtedly they also transmit bubonic plague as well as several other serious diseases through excreta deposited on the skin and the scratching in of the infective material, due to the irritations from their bites. Such infective material has been found in the dejecta of bedbugs, and so they become a serious menace to health as well as comfort. The smell of these disagreeable visitors is distinc-



(A) THE LOUSE IS BUILT FOR HANGING ON, AS INDICATED BY THE STURDY LEGS AND POWERFUL CLAWS. (B) THE VISELIKE GRIP MADE POSSIBLE BY THE CLAW STRUCTURE ILLUSTRATES HOW IMPOSSIBLE IT IS TO SHAKE HIM LOOSE. (C) THE LOUSE CEMENTS HER EGG FIRMLY TO THE HAIR; REMOVAL CAN BE MADE ONLY BY THE USE OF VINEGAR OR OTHER SOLVENTS; THE APERTURE ABOVE IS WHERE THE LOUSE EMERGES.

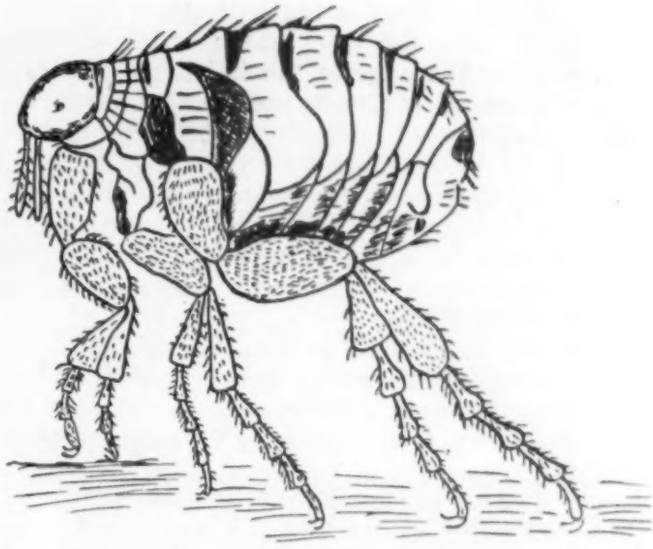
tive and is thought to be a protective measure similar to that of the skunk.

The control of bedbugs is comparatively easy, but once eliminated they do not stay eliminated, and constant effort and watchfulness are necessary. When buildings are infested, fumigation with sulfur is by far the most practical way of destroying these bugs, as it also destroys eggs and reaches all hiding places. To prevent lodgment, all walls and ceilings should be as free from cracks as possible. Wooden beds should be discarded and metal ones substituted. Gasoline and kerosene are also efficient at destroying any bugs inhabiting them. Infested clothing should be sterilized by heat; rooms should be heated to 130 F., and if this heat is maintained for three hours, it will destroy practically all insects.

Cockroaches are to be found in nearly all parts of the world. There are many varieties, but only two or three greatly concern us.

Cockroaches are among the oldest of the world's inhabitants and have existed here for millions of years. For this reason, they probably resent the intrusion of man into their lives and do their best to make it uncomfortable for him. In this they succeed admirably at times. Whereas they used to crawl over tree ferns and other carboniferous vegetation, now they crawl over man's food and thus become a serious menace to health through the possibility of contaminating food with various disease germs. Practically all cockroaches have wings at some time in their existence but fortunately do not often use them. Many lose them at an early stage, so we do not have to contend with them in flight. They are certainly the original "fleet foot" of song and story, for few life forms can move with greater speed. They are admirably adapted to hide in small places, as the body is flat and slippery and the legs are powerful. They have long "feelers" and can detect food at remarkable distances. They eat large quantities of food but destroy more by contaminations. Practically everything is food to them, and while they prefer that which is found around the kitchens, nevertheless the clothes basket, library or closet will furnish food, as they eat cloth, book bindings and leather when other food is not available.

COCKROACHES may be readily destroyed by a chemical called sodium fluoride. This is a cheap white powder, harmless to man and animals but deadly to insects both by contact and by ingestion. Hence if this powder is kept around places where cockroaches are liable to be, it will largely destroy them. Fumigation with sulfur or one of the poison gases will completely eliminate all such insects in large buildings or on shipboard, but this measure must be used only under expert supervision. To learn how successful one has been in the effort to destroy these insects one should visit a kitchen at night a considerable time after all work has ceased and suddenly turn on strong lights. Often where no cockroaches at all have been seen by day, dozens will be seen scurrying to shelter under sudden and unexpected light. As long as any tiny ones are about, one may be certain that the premises are still considerably infested. It requires much persistence to be rid of these troublesome pests.



WHILE FLEAS DIFFER SOMEWHAT IN SIZE AND STRUCTURE, ALL ARE MUCH LIKE THIS ONE. THEIR ARMORED BODY MAKES THEM HARD TO CRUSH, AND THEIR POWERFUL LEGS PROVIDE THEM WITH GREAT ALACRITY.

UNDER the name of "cooties," lice became well known during the World War, and few of us who took part in that great conflict escaped infection with these profanity producing and dangerous insects. Like bedbugs, they are present almost everywhere, and any lowering of personal or household cleanliness is almost certain to result in infestation with them. They exist on practically every animal, but some have become highly specialized. While they prefer their own particular host, they will attack other animals when hungry, and man, being just another animal to them, is often host, however unwillingly. Household pets frequently become infested and transmit lice to the family.

Lice are exceedingly dangerous insects, as they are known to give a number of the most serious diseases to man. Typhus fever (not typhoid), often called ship, camp or prison fever, is directly transmitted by lice. It was first thought that tularemia was largely limited to rabbits, but it is now known that it is carried by lice. During the World War a new disease called "trench fever" was recognized, and this too was spread by lice. Several tropical diseases are also known to be so transmitted.

Lice are admirably fitted to cling to body hairs and hence are not easily shaken from the body. They may let go and drop off, and so pass on to

other animals. They breed with great rapidity, and, as a rule, the eggs hatch quickly. The female glues the eggs to the hairs, so they are secure from all ordinary methods of removal. Three varieties are usually described, distinguished by the localities they usually inhabit. These are the head, body and pubic lice, and they are much alike. Children are especially liable to become infested, and the head louse is often passed from one to another by indiscriminate wearing of caps.

Body lice live mostly in the clothing, and from it they are likely to pass from person to person in crowded places. Every one is exposed to them more or less, especially in cosmopolitan crowds.

The destruction of lice depends largely on personal hygiene. In the hairy scalp they may be destroyed by thorough shampoo of equal parts of kerosene and vinegar; if the hair is long this solution may be left on for half an hour, the head being wrapped in a towel. The vinegar dissolves the material attaching the eggs to hair, and the kerosene kills both eggs and lice. Burning the hair after cutting it is also effective. Other methods may be used, but the ones mentioned are most efficient.

The body louse, including the pubic louse, is largely controlled by bathing. Therefore if personal cleanliness is the rule, such infestation is negligible. If one is infested the clothing should be sterilized, preferably in a steam laundry. Ironing the clothing, especially with a hot iron on all seams, is usually quite effective for clothing that may not be boiled. Elaborate outfits were used during the World War to destroy lice, and the cooties cost millions of dollars.

How we detest fleas, those elusive jumpers that are so prevalent on our pet dogs and cats and are so prone to visit us. In some sections of the country and at certain seasons, fleas are taken as a matter of course, and little attention is paid to them except to keep as clear from them as possible. Since it has become generally known that they are one of man's most dangerous enemies and are capable of transmitting bubonic plague, tularemia and perhaps other serious diseases, they are worthy of more study and effort at elimination.

Fleas lay eggs on their hosts, and each female lays approximately 500 eggs. But the eggs are not fastened on, as in the case of lice, and they may drop off anywhere. They are especially numerous around the places where animals sleep. There they hatch out in a few days, and the larvae, or worms, quickly hide themselves in dust, bedding and other such places. Under favorable conditions this larval stage lasts about a week but may be prolonged by unfavorable temperatures to four or five months. Then the worm spins a cocoon which is hard to find as it becomes dust covered and closely resembles the material around it. The period of development in the cocoon may be months though the average is about two weeks. When the weather is cold the developmental processes are much retarded. Then, too, fleas will exist several weeks without food. When conditions are favorable, development is rapid and frequent feeding is necessary.

Flea bites are irritating and annoying, and in some persons they become quite disabling, usually because the itching is intense and interferes with proper rest. They also, like many other biting insects, inject saliva, which prevents the blood from clotting and which produces the severe irritation.

When there is danger from plague the control of fleas is vitally important. Under such conditions it then becomes the function of the health department, either local or national. Then the program centers largely on killing rats, gophers and other rodents, such as ground squirrels and prairie dogs, that are susceptible to the plague and from which it is transmitted by fleas to man. Under ordinary conditions, flea control is purely a personal matter. Certain localities and seasons make it easier for fleas to breed, but no locality or season protects us from these pests. If the house is badly infested, fumigation is the most certain way of destroying them. If there seems to be a constant entrance of a few, they may be captured by fly paper placed around the walls and under beds. The vacuum cleaner is a great enemy of fleas, and since its advent into homes, flea infestations have been greatly lessened. Fleas are quickly destroyed by the dust obstructing their breathing pores when sucked into the dust bag of this machine.

Dogs and cats which are allowed entrance into the homes must be carefully and frequently cleaned, as otherwise they are rarely free from fleas. In fact, one of the older ways of ridding a house of fleas was to send in the dog, and after he was well infested, clean him and repeat the process until the place was relatively clear. This merely illustrates how quickly fleas will discover and attach themselves to a good food supply.

While not all insects are injurious and many are beneficial, there are some 300 varieties that are unfriendly or even dangerous to man. They were here long before we were and are admirably adapted to continue on this earth. If we would live here in relative security and comfort, we have this fight with insects constantly with us not only for our personal comfort and safety but to protect our food supply. It is one of the never-ending contests which is necessary for us to enter in order to live on this planet, and the more we know about our enemies, the more successful this fight will be and the greater will be our comfort and security.

NEWS and VIEWS

Ewing Galloway

"THE LIGHTHOUSE" IS THE NAME OF THE SETTLEMENT FOR THE BLIND AT WHICH THESE WOMEN ARE WORKING.

Soibelman Syndicate

THE POLICEMEN IN STOCKHOLM, SWEDEN, MAKE THE PHRASE, "AT YOUR SERVICE, MADAME," MEAN SOMETHING.

RADIO ENTERTAINMENT DIVERTS THE PATIENT'S MIND FROM HIS OPERATION AND DROWNS OUT OTHER NOISES.

Ewing Galloway

How Many Heartbreaks?

By

FLORENCE FITZGERALD

OLD DR. BARRETT drove appreciatively through the sunshine of a late July afternoon. There had been rain in the morning. That accounted for the new-washed look of the air and the deep, shining green of the plumy elms that waved softly over the Swain driveway.

The old doctor paused a little, drew over to the side of the highway and tooted his horn. There were voices in the Swain orchard—Jimmie, probably, judiciously assisting some of the larger and riper Wealthies to fall into his cap. The doctor grinned as one urchin scampered suddenly over a fence and disappeared with a shout of triumph, cradling green treasure under the front of a nondescript overall.

There was an answering shout from the depths of the apple trees and, in a moment, Jimmie Swain appeared on the run, pockets bulging, arms waving.

"I'm coming!" he announced somewhat unnecessarily since he had already reached the highway and was clambering with agility over the green fence.

"You lost something," the doctor observed placidly as Jimmie landed in the shallow ditch beside the car and a hard green apple rolled out of overcrowded pockets and safely into the big drain under the highway.

Jimmie ignored the apple.

"Mostly I just chew 'em and spit 'em out," he said airily as one man of the world to another. "I do think my mother is very unscientific about some things," he added thoughtfully.

There was no obvious connection between the two remarks, and the old doctor merely grinned and acquiesced silently.

Of all the Fort Atkinson boys whom the old doctor had ushered into the world this freckled youngster with the shining blue eyes and the sagacious comprehension of so many problems that were really beyond his eight years was his favorite.

When nature is at its kindest and life at its best an old doctor always has a son of his own to take along on country drives, to instruct as they go in his own dearly bought wisdom about life and men and the best antiseptics. It is a foregone conclusion that the boy will go to medical school in due course and that he will carry on the old man's work.

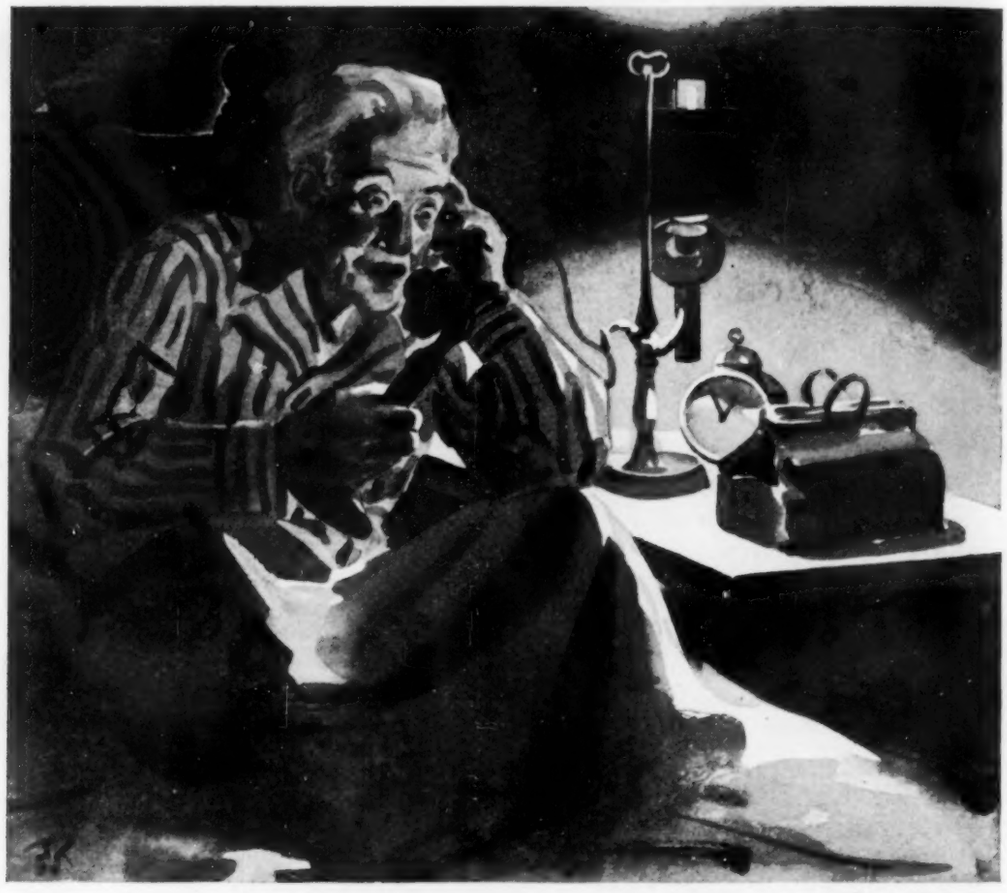
But nature had tried the old doctor more than most, and life had given him a flock of handsome daughters who had competently taken themselves out of Fort Atkinson to accept responsible jobs in Chicago and Pittsburgh. Life had seemed dull to them in Fort Atkinson. The old doctor knew, of course, that life was precisely the same in Fort Atkinson as it is in Pittsburgh, but he sent the girls on their way with his blessing; and now he was finding in this small boy, son of an old friend, the eager

THE EMERGENCY APPENDECTOMY WAS NECESSITATED BY A DOSE OF CASTOR OIL, BUT THE OLD DOCTOR AND THE FINE SURGEON HE HAD SUMMONED WOULD DO THEIR BEST; BETWEEN THEM ALL THEY'D SAVE HIM.

interest in bandages and fishing in Fort Atkinson's one small lake that his own son would surely have given him.

Today, for some reason that he had not yet put into words even to himself, the old doctor had felt uneasy and depressed. It was a feeling with which he was familiar enough. Sometimes he had it when there was a difficult obstetric case ahead and the faith placed in him by an anxious young husband made him pray desperately for the divine sureness that comes to the overburdened medical man, now and then, as if by divine gift.

But there was no such case ahead of him now —only this matter of getting antitetanus serum out to young Pete Carlgren who should have come to his office for it but hadn't, perhaps because he was perversely and irrationally fearful of a doctor's bill. The old doctor frowned with annoyance the while he extracted an apple from Jimmie's nearest pocket and munched on it meditatively, taking his hand off the wheel



IN THE NIGHT THEY HAD CALLED THE OLD DOCTOR ABOUT JIMMIE. IT WAS LIKE THE RELIVING OF A DREADFUL NIGHTMARE, EACH EPISODE OF WHICH HAD BEEN EXPERIENCED AT SOME TIME BEFORE.

now and then for a bite and making a wry face at the tart, puckery taste.

"Where 're we going?" Jimmie inquired, settling himself alongside with a contented wriggle.

"To Pete Carlgren's. Pete's horse kicked him right between the eyes yesterday."

"Hm-m. Did you have to take stitches in his head?" Jimmie was round eyed and serious.

"Yep. Had to open the wound and clean it out a little. Pete was lucky the horse didn't kick his eye. Only trouble is, the wound was deep, and barnyard dirt might have got in where I couldn't get at it."

"Did you put on iodine?"

"Not this time," the old doctor explained gravely. "I cauterized the wound, burned it out, you know, Jim, to be sure I had cleaned it and had gotten rid of rotten tissue. But there are germs that get in deep and grow in spite of you. Tetanus is one of them. It grows best deep in bruised tissue where it is protected from air, and it's likely to be around barnyards especially. If there was any tetanus on that horse's hoof there might be the dickens to pay; the wound was on his head, close to his brain, and that makes it even more dangerous.

"That's why we're going out there now—to make that stubborn Pete take a shot of anti-tetanus serum. Should have done it yesterday, but I had none at my office. I don't keep it there, and the drug store was out of it. I told him to come in today, and I sent for the serum specially. He didn't come though."

"If there was a tetanus germ, would it be bad?"

"It would that. Jimmie, these apples are terrible. Why don't you try to hit that post with yours? They ought to make good missiles. I'd hate to get hit with one myself."

The rest of the trip was given over mainly to target practice, and the two drove happily into the barnyard of Pete Carlgren's barren but immaculately neat premises.

Mrs. Carlgren was waiting for them at the barn door. She waved the white cloth with which her milk pail had been covered to protect it from the dust.

"I'm doing the farming now, Doctor," she informed them as they drew up and stopped in front of her. "You're just in time to see me do the milking."

She had a sunny smile, this clean, squarely built country girl, and friendly, direct gray eyes. The old doctor was fond of her. He had known her since she was a fat baby.

"Where's Pete, Nola?" he demanded. "Why didn't he come to my office as I told him?"

"Pete? Why Pete's gone to New Brighton to see his folks. His uncle came, and Pete thought as long as he couldn't go out in the field yet he'd just go along and stay a couple days."

"Gone! Nola, I told you yesterday that he must come back to me today. And I told you why. Now why didn't he do it?"

"Well, honest, Doctor, his head is doin' fine. I did tell him to stop at your place; but you know Pete. He wouldn't do it."

"Now you listen to me, Nola, my girl." The old doctor was suddenly brusque, wrathful. "You get in touch with that young fool right away. He's running an awful risk. Telephone him long distance or wire him or go after him yourself; but do it quickly. He can go to somebody else if he wants to. But tell him I've got the serum for him, and there's probably still time to use it if he hurries. If he's worrying about the bill tell him I've already paid for it. Tell him if he doesn't he's a fool and I said so!"

WRATHFULLY the old doctor started his car. He paused when they had turned and the car was again headed toward the highway.

"Don't be careless about this, Nola," he said gently. "It's serious."

They rode away silently, Jimmie and his friend. Jimmie was pondering the mystery of deadly germs that could cling to a horse's hoof. The old doctor was fighting off an increasing sense of foreboding. He felt impotent and outraged and certain of disaster, as certain, in spite of attempts to reassure himself, as though he had actually seen big Pete Carlgren fighting off the horror of paralysis.

What should he do? Go back and find out where Pete's folks lived? Go, himself, to New Brighton? But he had evening office hours and appointments.

"Isn't castor oil unscientific?" Jimmie's voice broke insistently through the old doctor's preoccupation.

"I used to call it worse names when I was your age, Jim; but sometimes it's very useful. Why?"

Jimmie sighed heavily.

"My Mom gave me some. Gram told her she brought up her boys on castor oil, and look at them!"

"I've looked at them." To himself the old doctor added that they certainly looked tough enough to have survived cyanide, those that were left. Instead he said aloud: "What did they give you castor oil for, Jim?"

THE old doctor spoke sharply. He bent a suddenly alert gaze on his small companion.

"I had a bellyache. Gram says I should say stomachache; but I like bellyache best, and I told her you said it was my belly."

"Belly is right if it was your belly. And you can tell your Mom and Gram—and tell 'em I said so—you are never to take castor oil when you have a bellyache or stomachache either. Never, do you hear? You are to go to bed and call me. Of all the—When did you have a bellyache, Jimmie?"

"Oh, last Wednesday when I went to Marie's party and ate too much, and one other time, I forget when. Mom says my digestion is weak. But Mom isn't scientific because why don't I get sick all the time when I eat too much most every day?"

The old doctor laughed in spite of himself.

"Dunno, Jim," he said. "Suppose you come over and see me at my office tomorrow? I'll poke around and see whether I can find out the reason. You should have told me when you got sick before."

"Oh, it wasn't anything. But you bet I'll tell 'em the next time they try to make me take that castor oil!"

The old doctor tooted his horn viciously at a dog in the road. Myra Swain should have known better. He had talked to her about that very thing before. He glanced down at Jimmie anxiously. The boy was thin; but he was muscular and the picture of health. He might have appendicitis though. You never knew. He'd certainly talk to Jimmie's Mom again—and promptly too.

They turned in at the Swain driveway, but the old doctor had no chance to speak to Jimmie's Mom for she met him at the steps with the familiar message that they were calling everywhere for him at his office. He must go there at once. An accident. . . .

THE old doctor backed around, still heavy with anxiety. It was as though he had seen them in advance with his own eyes, so complete was his foreknowledge, at that moment, of the events that followed.

A succession of falls, cuts and broken bones kept the old doctor busy for two days. Jimmie failed to come in as he had been told, but the doctor found time to call Myra Swain on the telephone. Jimmie was quite well, it appeared. Yes, he had told them about castor oil. Wasn't that boy the very limit for getting out of things? Now he had maneuvered to get the doctor on his side. No, of course, she wouldn't give him castor oil if he had a pain in his tummy. . . . No, no she wouldn't.

The old doctor sighed as he hung up the telephone. You never knew when you had really made an impression on a woman. Maybe he could find time to go out there tomorrow. But the office was full of people again, and his telephone was ringing.

"What is it, Nola?"

"It's Pete," came a frightened voice at the other end of the wire.

He had known it would be Pete. Poor young Pete and poor Nola! Why hadn't he gone to New Brighton, forced the boy to take that shot while there was time? Even now it was waiting in the ice box. Was it something the matter with him that his people so failed to obey him?

"He's acting so queer," Nola was saying, "and he's awful sick. Can't you come right away, Doctor, and do something?"

Could he do anything? Yes, he could rush out now and give Pete his shot and hurry him to the hospital in the city where they would give him more and more shots. It was probably too late now, though, no matter how many shots they gave him.

The old doctor did rush out and take a terror-stricken, half-mad Pete to the hospital.

"If you had only sent him to me when I told you, my dear," he said sadly to Nola and then forebore to say any more for pity of the white, stricken girl.

It was just as he had foreseen. Pete lived a little more than a week, during which the doctor stayed with him as much as possible and they administered the serum in ever increasing amounts, to no avail.

And then, in the night, they called the old doctor about Jimmie. It was like the reliving of a dreadful nightmare, each episode of which had been experienced before.

"It's—I'm sure it's green apples," Myra Swain faltered to the old doctor in the doorway. "Mama gave him some epsom salts for it yesterday because he just wouldn't take castor oil after what you said. But it didn't do any good, and now he's so sick! I've never seen him like this. Oh, Doctor!"

"You gave him salts? Myra, how could you!"

He pushed past her and fairly ran up the stairs to Jimmie's room. Once there he became suddenly quiet, tight lipped and infinitely gentle. The examination was brief enough; the old doctor had known when he looked at his little friend.

He called the hospital then and a surgeon. It was one o'clock in the morning, but the hospital and the surgeon would be ready.

"Appendicitis," he said to Myra quietly. "Ruptured, I'm afraid. We'll operate as soon as we can get him there."

"If you had called me earlier—yesterday or even this morning. Every hour would have counted. If you had not given him salts to cause movement in his abdomen when what he needed most was rest until we could operate. You knew, Myra. I told you."

"But, Doctor, he'd been eating those hard winter apples. That's what made him sick. I know it was. It was the apples."

"Nonsense, Myra."

"But Mama said—"

Perhaps the old doctor is to be forgiven if he spoke savagely. They were on their way, driving carefully. Jimmie had relaxed into an unnatural, stuporous sleep, but his old friend was not fooled.

"Mama said, Mama said," he echoed her bitterly. "What about what I said? Is Mama's word to be taken against mine in a matter of this kind? I told you to call me the minute he complained of a stomachache. And whatever else you did, I told you not to give him castor oil or any sort of laxative."

"I know now. Oh, I know. I wish I hadn't. It was the apples that fooled me. Dear God, save him. Save him, and I'll never listen to any one else ever . . ."

Her words became a frantic prayer in which her petitions alternated pitifully between God and her old friend.

The old doctor's heart smote him. He ceased to reproach her, nor did he ever reproach her again but sought, instead, to comfort her and give her hope. He put his arm about her when they took the boy from her to prepare him for operation, and he patted her shoulder, told her to pray for Jimmie and not to worry too much. The old doctor and the fine surgeon he had summoned would do their best. Between them all they'd save him.

Peritonitis had set in. In that, the old doctor's worst fears were realized. For weeks Jimmie lay between life and death. But in the end they did save him.

Then the old doctor sought by every means in the power of medicine to bring back life and strength to the wasted little body. And because those powers are very great these days and because Myra Swain added to her prayers the most implicit obedience to the old doctor's instructions they did bring him triumphantly through.

With a deep satisfaction the old doctor saw color come back into Jimmie's face and springiness into his young feet. Very nearly, it made up for the deep regret he still felt when he thought of Nola Carlgren. He had not yet given up asking himself whether he had been at fault there. How could he force people to be saved against their will?

Ah, well, he would not allow himself to be discouraged. There were many people in Fort Atkinson who would never make Pete's mistake now, nor Myra's. Gradually they would learn other things too—but at the cost of how many more heartbreaks, how many needless tragedies?

The old doctor tooted his horn again on a bright fall morning as he drew up beside the Swain driveway. Jimmie appeared on the run. He was eating as usual. This time it was cookies fresh from the oven.

"I've got some for you too," he said, settling himself happily into his accustomed place. "Gram said I'd spoil my lunch and I shouldn't eat fresh cookies anyway. Then I heard you, and I said I'd ask you if I could eat just four or five or maybe six because it's a long time till lunch time."

The old doctor laughed as he accepted the proffered cookie.

"We-ell, I guess it'll be all right—if they're nice fresh cookies and you give me my half," he said.

GONOCOCCI, THE CAUSATIVE ORGANISMS OF GONORRHEA (HIGHLY MAGNIFIED)

1855— ALBERT NEISSER —1916

Discoverer of the Cause of Gonorrhea

By ADOLPH BEILIN

THE NAME of Albert Neisser will be perpetuated for his discovery of the causal agent of gonorrhea. However, gonorrhea is still one of the most prevalent infections. This disease and other sexual diseases have existed since the dawn of civilization. Prior to the development of scientific medicine, venereal patients were driven to druggists and quacks for advice and treatment, because many reputable physicians refused to attend such patients. Today this barbaric practice has been replaced by the physician who is thoroughly equipped to handle such cases.

Health authorities have estimated that one out of ten persons in the United States suffers from some form of venereal disease. Despite all the modern prophylactic measures and the knowledge of effective prevention of gonorrheal infections after exposure, nevertheless indifference, ignorance and false prudery are still largely responsible for the undue prevalence of this disease. Gonorrhea is entirely a human affliction. In adults it is almost invariably transmitted through sex contact, but in some instances the gonococcus may remain alive on towels, clothing or bedding for short periods of time and thus infrequently prove infective. The disease has been known to spread rapidly through schools and orphan asylums in which infected attendants have been employed. Sterility in women and blindness in new-born babies are frequently produced by the gonococcus; but in recent years the prevention and treatment of gonorrheal infections have undergone considerable progress. A 2 per cent solution of silver nitrate in the eyes of a new-born infant is a positive preventive of blindness from this disease. This preventive measure is now used throughout the civilized world.

THE cause of gonorrhea remained unknown until 1879. In that year Albert Neisser, following the bacteriologic methods of Koch, poured a watery solution of methyl violet over a bit of gonorrheal pus and then examined it under high power magnification through a microscope. In this manner he was first to discover the gonococcus.

Neisser was born at Breslau, Germany, Jan. 22, 1855, and he lived until 1916. For

many years prior to the discovery which brought him into world prominence, he was successively professor of skin and venereal diseases and occupant of the chair in dermatology at the University of Breslau. His studies embraced almost the entire field of dermatology and syphilology, and he was first to observe the tuberculous nature of lupus, an external form of tuberculosis. An indefatigable research worker and writer, he was particularly active in studying the prophylaxis of venereal diseases in general and the prostitution problem from the sociologic, national-economic and ethical points of view. Like his father, who was a practicing physician at Breslau before him, Neisser was held in high esteem by all who knew him. For his isolation of the gonococcus, numerous researches on various pathogenic microbes and incessant warfare against infectious diseases he rose to immortal leadership in the cause of medical progress and human welfare.

HEALTHGRAMS ✣ from Articles in This Issue

¶Ultimate common sense will bring a realization of true values, and we may expect the growing children to find themselves and to develop a philosophy that will enable them to carry on. *See page 974*

¶Public safety cannot be stampeded into human consciousness; the ideal must grow with increased understanding and education. *See page 978*

¶To replace abnormal and inadequate patterns with normal and adequate ones is the whole job of mental cure, and the button factory is an excellently fertile field for such a growth. *See page 967*

¶The meningococci are harbored in the nose and pharynx until something happens to the body which breaks down the natural defense against the organisms; then the germs have the opportunity to invade the body and start the disease. *See page 1025*

¶In a two car garage enough carbon monoxide may be emitted by one car to cause collapse in from five to ten minutes and death in another five or ten minutes. *See page 986*

¶Despite all the modern prophylactic measures and the knowledge of effective prevention of gonorrheal infections after exposure, nevertheless indifference, ignorance and false prudery are still largely responsible for the undue prevalence of this disease. *See page 1003*

¶It is far better to let an injured person lie in the road until the arrival of necessary splints than it is to lift him into an automobile without the proper splints and rush him to a hospital. *See page 1005*

¶An individual with good posture presents a picture of health, vigor, vitality and self respect. *See page 970*

¶Modern medical science attributes the value of certain raw vegetables and fruits in the prevention of scurvy to the vitamin C which they contain. *See page 1019*

¶It is now known that insects not merely are annoying pests but are likely to carry the germs of serious diseases and may be a potential danger of real proportions at times. *See page 993*

¶The effects of climate actually precede birth and remain a determining factor throughout a natural life span of puberty, settled maturity and on to final demise. *See page 989*

¶When nature is at its kindest and life at its best an old doctor always has a son of his own to take along on country drives, to instruct as they go in his own dearly bought wisdom about life and men and the best antiseptics. *See page 998*

¶The fact that boys and girls do not have their periods of accelerated growth at the same time is responsible for certain peculiarities of behavior. *See page 1033*

¶In medicine the Italian contribution has been unequalled by that of any other nation; the first great anatomists were Italian, excepting only the first of modern anatomists, Andreas Vesalius. *See page 1008*

¶In a case of pneumonia the patient may have all the fresh air he desires, as long as the air does not blow directly on him. *See page 1021*

Broken Bones

By
ROBERT HAYWARD KENNEDY

THE NUMBER of accidents occurring in this country is steadily increasing, in spite of the excellent efforts being exerted by various safety organizations. Many of these accidents result in broken bones. A broken bone and a fracture are the same. It is estimated that between 1 million and 1½ million fractures occur in the United States each year.

One often hears of a compound fracture. This does not mean that the bone is broken in more than one place. It refers to the fact that the point of the break communicates with the outside air through a hole in the skin. This opening may be made by one of the bony fragments piercing the skin from the inside; or, as in the case of an automobile passing over the leg or in a gunshot wound, it results from the skin and soft parts beneath being torn by an outside object, so that the hole reaches to the bone. Because of the danger of infection, a compound is much more dangerous than a simple fracture. The latter is one in which the skin is unbroken over the site of the injured bone, so that there is no communication with the outside air.

There are many causes of bones being broken; for example, in athletics, broken bones may be caused by being struck on the tip of the finger by a baseball, twisting an ankle in sliding bases or being tackled on the football field; in industry, by falling from a height, which need be but a few inches, by being caught in some part of a machine or being struck by a falling object; in the home through standing on a wobbly chair or stepladder, falling downstairs or slipping in a bathtub. At present, however, the automobile causes the majority of fractures of every possible variety.

The symptoms and signs caused by broken bones vary with the location. In general they are pain, loss of function and deformity. This is not true of the skull, where usually it is not the fracture which is important but only the amount of damage to the brain beneath. The symptoms are due to the injury to the brain. With rib fractures there is pain on breathing and on moving the chest; the loss of function is due to the pain, and frequently no deformity can be discerned. In spinal fractures there is usually pain; there may be inability to stand even though there is no damage to the spinal cord, but there is frequently no deformity, except as shown in an x-ray picture. In case of breaks in the extremities, pain, loss of function and deformity are usually all present. However, this is not necessarily true. Therefore if a person has had an injury which might cause a fracture he should always be treated as if he had one, until an x-ray picture proves that none is present. Otherwise with a crack through the bone but with the ends in good position, these may become displaced and hard to replace. Or in moving a person carelessly one of the fragments may stick through the skin.

The function of the leg is to bear weight and to allow motion at the knee and ankle. If the leg is broken there is usually some loss of function; that is, the leg will not bear weight as it did before, or the knee or ankle cannot be moved as well. Deformity means that the part is crooked. This is well seen in the common wrist fracture, known as a Colles' fracture, in which the appearance of the hand and forearm is like a reversed silver fork.

THE layman should not worry about diagnosing a fracture. But he needs to appreciate that every time he sees a person who has had an accident, if there is pain, loss of function or deformity present the person should be taken to a doctor or hospital. If there is the remotest possibility of a broken bone being present, much time and discomfort are saved by giving the injury early attention rather than waiting, even a few hours, to learn whether the condition improves. There is no excuse for manipulating a part to learn whether the bones move at some point at which they should not or whether the fragments can be rubbed against one another. The latter procedure causes a grating sound called crepitus. In most parts of this country an x-ray picture can be taken within a few hours, and in the meantime the doubtful case should be treated as though it were a definite fracture. In any accident if a person has been unconscious, even momentarily, or is said to have fainted, he should be taken to a doctor. There may be a concussion of the brain, with or without fracture of the skull. Again early attention means much in complete recovery and may even save life.

The initial care of a broken bone is almost always given by a layman. Doctors are rarely present where an accident happens. Every one around would like to do something to help until a doctor arrives or more commonly until the injured person reaches the doctor's office. In their efforts to help, more harm than good is often done. It is necessary to remember only

IT IS FAR BETTER TO ALLOW THE PERSON TO LIE IN THE ROAD UNTIL THE ARRIVAL OF NECESSARY SPLINTS THAN IT IS TO LIFT HER INTO AN AUTOMOBILE WITHOUT THE PROPER SPLINTS AND RUSH HER TO A HOSPITAL.

a few essential points. "Splint 'em where they lie," and splint 'em effectively. Don't move a patient with a broken arm or leg without pulling firmly but gently on the hand or foot. This pull will relieve pain and prevent more damage, such as allowing a fragment of bone to pierce the skin. This pull splints the bone but cannot be continued easily until the injured person reaches his destination. Therefore some form of splint needs to be applied before the person is transported. It is far better to allow the person to lie in the road until the arrival of necessary splints than it is to lift him into an automobile without proper splints and rush him to a hospital. Instead of saving time and discomfort the latter method will often change a mild fracture into a serious one and add weeks to the time of recovery, only because some one was misguided in his efforts to help. The American Red Cross gives training in proper and effective methods of first aid at the site of accident If you are the person in an accident you have a right to demand of the highway patrolman or whoever takes charge that you be properly splinted before you allow yourself to be moved at all. The distance which you have to be trans-

ported makes no difference about the necessity of splinting. It is just as necessary before moving if an accident occurs in front of a hospital as if one has to travel many miles. It is the lifting and moving about, rather than the time which elapses, which is liable to cause damage.

On arrival at a doctor's office or hospital an x-ray picture should be taken. It should not be a question of whether you can afford it. You cannot afford not to have it, for you will make the quickest recovery if you learn immediately what is wrong and have proper attention. Only in the rare instance in which no x-ray machine is available for many miles should a fracture be reduced before an x-ray examination is made.

To REDUCE a fracture means to replace in their proper position broken bones which are out of place. Before we had the benefit of x-ray pictures, so that we could know exactly what had happened, it was often necessary to wait until the swelling had gone down before reduction could be done. This is no longer true. The quickest way to reduce the swelling is to reduce the fracture. If the x-ray examination reveals that bones are out of place, efforts to return them to their correct relation should be made immediately.

To do this effectively an anesthetic is usually necessary. Injured persons often say that they do not wish an anesthetic because they can stand the pain. In fractures the main reason to give an anesthetic is not to abolish pain but to relax the muscles. Only by complete relaxation can the fragments be replaced without possibly doing further damage. You wish the best result, and only by being completely relaxed under an anesthetic can you expect to obtain it.

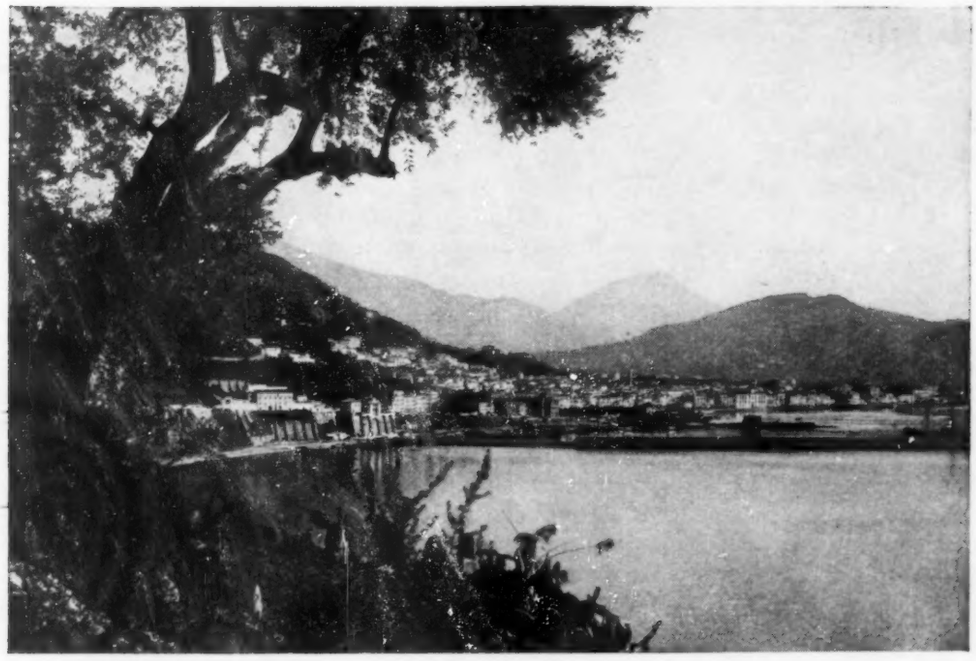
When the broken fragments have been replaced, or in case there is a break but no displacement, some appliance is usually necessary to maintain the correct relation. There are many ways of doing this, such as adhesive plaster, board splints, plaster of Paris and various methods of exerting continuous pull. In many fractures it may be advisable never to use a plaster casing, so do not think that you are not making progress because one has not been applied.

THE length of time that a person will be disabled after a fracture depends on many factors: the type and location of the fracture; whether it is simple or compound; how soon it was reduced and could commence to heal; the age of the patient and the cooperation given by him, and so on. Because Mr. Jones had a broken leg and was back at work in a certain length of time does not prove that your broken leg should be solid in the same time. It may be a shorter or a longer period according to the difference in conditions such as those previously mentioned. An estimate of an average time for a particular fracture to heal is all that any doctor can give, and do not expect him to be 100 per cent perfect in his prophecy.

In treating a fracture every doctor aims to attain certain objectives: (1) solid union, for a bone is a strut, and a weak strut is of little use; (2) the same length of limb as before the accident; (3) absence of deformity, so that when it is looked at from any direction the limb may appear similar to the one on the opposite side, and (4) perfect function of the joints on either side of the fracture. This can never occur unless the patient cooperates with the doctor in trying to obtain it. Joints do not return to normal by themselves unless they are exercised. The patient must do this for himself when the proper time arrives, or stiffness may be permanent. All the apparatus which has been devised to mobilize the joints is only one way of helping the patient to help himself. Apparatus, by itself, will never return joints to normal. Cooperation of the patient may do it, with no apparatus whatever. The doctor aims to attain all these objectives; but often some, or all, are impossible. Patients are too ready to blame doctors for some abnormality after a fracture, when often they are fortunate that the extremity could be saved at all. Don't expect the impossible.

WITH most broken limbs it is of great advantage to keep the part elevated for several days after treatment is commenced. This prevents or diminishes swelling, thereby allowing the healing process to progress more normally and rapidly. The injured person should move all parts not actually splinted, frequently from the day of the accident. The disability of uninjured joints which have not been conscientiously moved is often more prolonged than that of the joints concerned in the fracture. Patients often insist that because of pain they cannot use their fingers after a wrist fracture, and they expect that the function of these fingers will return when the bone heals. This will not occur. The longer the fingers are kept quiet, the greater will be the pain on trying to move them and the less will be the likelihood of ever being able to use them perfectly. If the person moves his fingers frequently from the first day, no matter whether or not swelling is present, the amount of pain and disability will be markedly lessened. Nature or the doctor can never make up for indifference or fear on the patient's part in this regard.

In case you break a bone and care for it immediately, the use of present-day knowledge will usually result in solid union without deformity and without disability.



SALERNO, IN SOUTHERN ITALY, WAS THE SITE IN MEDIEVAL TIMES OF THE GREATEST MEDICAL UNIVERSITY AND HOSPITAL OF ALL EUROPE.

The Doctor Abroad— ITALY Part I

The Second of a Travel Series on Points of Historical Medical Interest

By LOGAN CLENDENING

ITALY is the heaven of the sightseer. Paintings, sculpture, art galleries, palaces and cathedrals, in profusion, jostling each other by their proximity, attest to the restless and incessantly creative mind of the wonderful race that has inhabited that peninsula, making the land a veritable museum.

Here we find many evidences of Italy's medical men of genius and of her scientific accomplishments, for the Italian mind, especially the northern Italian mind, was one of the finest instruments for logical thought that has ever been created. Those who are accustomed to think of the Italians as predominantly artistic, with a genius for painting, architecture, sculpture, music and literature, but not capable of sustained intensive investigation of scientific ideas, forget the great names of Galileo, of Toricelli, of Galvani, of Volta and in our own day of Marconi, men who worked with that hardest of all sciences, mathematics, and with its related subjects, physics and astronomy.

In medicine the Italian contribution has been unequalled by that of any other nation. The first great anatomists were Italian, excepting only the first of modern anatomists, Andreas Vesalius. His great contribution was completed largely by Italians—Fallopius, Eustachius, Columbus, Fabricius and Valsalva, to name only the most important.

In physiology the Italians claim that they have more right to the credit of the discovery of the circulation of the blood than does the Englishman, William Harvey. Two Italian professors, Galvani and Volta, founded not only our knowledge of the physiology of muscle and nerve but also practical modern electricity.

IN THE use of the microscope the real founder of the study of the minute structure of the body was Marcello Malpighi, who described the appearance of the lungs, kidneys, heart, spleen and many other organs and tissues.

In pathology, the science of diseased tissues, the first foundation stone was laid by Morgagni. But long before him, the Florentine, Bienvieni, the physician of Savonarola, had been dissecting dead bodies and recording the cause of death.

In the earliest stages of our dawning knowledge of germs as the cause of disease two Italians, Spallanzani and Redi, made most important observations.

The list of the great physicians, beginning with Sanctorius, and the great Italian surgeons,

such as Scarpa, would be too long to record. The traveler to Italy, then, who wishes particularly to see historical objects of medical interest may expect to have his hands full. We shall assume that he lands, as most visitors to Italy do, in the south at Naples. If he is versed in historical lore, in looking over the map of southern Italy his eye will be attracted by the city of Salerno. This was the site in medieval times of the greatest medical school of Europe. The easiest way for the traveler to get there is to go from Naples by automobile, a distance of about 35 miles. He should plan to spend at least an entire day on the trip because he can see Pompeii on the way down, and a short distance on the other side of Salerno is the city of Paestum, which exhibits some of the most beautiful remains of Greek temples in the world.

Salerno is beautifully situated for a health resort and, indeed, the school of Salerno as a medical school was probably founded because of the advantages of the city as a health resort. In a warm and salubrious climate, it has the advantages not only of the ocean and the mountains behind but also of several baths and springs. I industriously tried to find some ancient remains of the original baths of Salerno, and after many inquiries and dodging about through farms, picking my way in and out of chicken yards, cow sheds and hog pens, I finally found a dilapidated little establishment which was labeled Bagni Minerali. There was no evidence of a patient, of an attendant or of a bath. Behind the house was a little stream which evidently sprang from a spring, the water of which was being pumped and bottled in an extremely unsanitary bottling house. This is all that I could discover of the glory of the baths of Salerno.

THE school of Salerno was founded about the eleventh century. The records are obscure. It seems to have followed closely on the advent of the Normans into Italy. This was about 1075. It is related that forty Norman knights on their homeward journey from the Holy Land delivered the local ruler from the Saracens. He loaded them with presents which excited great envy and admiration on their return home. A group of Norman knights went to Italy to investigate conditions of living, and among them were Robert Guiscard and his brother Roger, who founded the kingdom of the two Sicilies. The son of Duke Guiscard, Bohemund, was sent to Salerno in order to be treated for the wound which he had received in battle. It is also said that William the Conqueror lived at Salerno for a time for the same reason.

The school flourished under the enlightened patronage of the kings of the two Sicilies, and in 1140 King Roger set forth the first medical practice act in a decree that stated that before beginning practice a physician should be examined by royal officials "in order that the king's subjects should not incur dangers through the inexperience of their physicians."

THE most famous literary product of the school of Salerno is the "Regimen Sanitatis," which proved to be one of the most popular poems ever published. It had a wide vogue in the Middle Ages and was translated eleven times into French, eight times into German, six times into Italian and five times into English.

Its precepts set forth a way of life of which the following verse in the translation of Harington may be considered typical:

Use three Physicians still; first Doctor Quiet,
Next Doctor Merry-man, and Doctor Dyet.

Rise early in the morne, and straight remember,
With water cold to wash your hands and eyes,
In gentle fashion renching every member,
And to refresh your braine when as you rise,
In heat, in cold, in July and December.
Both comb your head, and rub your teeth likewise:
If bled you have, keep coole, if bath'd keepe warme:
If din'd, to stand or walke will do no harme.

FABRICIUS, WHOSE STATUE MAY BE SEEN AT AQUAPENDENTE, MADE IMPORTANT CIRCULATORY DISCOVERIES PRELIMINARY TO THE MORE FAMOUS ONE OF HIS NOTED PUPIL, WILLIAM HARVEY.

STRANGE AS IT MAY SEEM, A BACTERIOLOGIC PHENOMENON LED TO THE FOUNDING OF THE EXQUISITE SMALL CATHEDRAL AT ORVIETO.

Nothing remains of the buildings of this school today, and the visitor must content himself with feeling that he is in the atmosphere of a great tradition of the past. He need spend little time in Salerno itself, but I strongly advise him to pass on to Paestum where, at an excellent little inn, he can obtain lunch and view the ruins of the ancient city at his leisure.

There is little else in southern Italy to claim his attention. The Roman and Graeco-Roman surgical instruments in the museums at Naples are interesting and will give him an idea of the many activities in which the surgeons of that era were engaged.

In Rome I know of no monument standing which may be called of strictly medical interest, but as the traveler goes north from Rome these objects thicken. Halfway between Rome and Perugia the traveler, if he is lucky enough to journey by automobile, must stop at the little city of Orvieto. If he is compelled to go by train he should make a special journey thereto either south from Perugia or on his way from Rome.

The city stands on a granite rock rising from a plain, the plain itself circled by a ring of other granite hills, evidently the crater of an extinct volcano. In the very center of the little city is probably the most exquisite small cathedral in the world. On its facade is found in sculptured form the whole spirit of the thought of the Middle Ages. But what principally attracts the medical visitor is the reminiscence of the history of the founding of the cathedral.

The story goes that the idea of building the cathedral originated in a miracle which occurred in Orvieto in the twelfth century. A priest was administering the sacrament when he found that there were some drops of blood on the sacred bread, and as this was the body of Christ, it was immediately concluded that these drops of blood were Christ's own blood. Every medical man, of course, is taught in his course in bacteriology of the natural explanation of such an occurrence. Bacillus prodigiosus is a germ, or mold, of red color looking exactly like blood, which grows rapidly in round clumps on damp bread. Any lover of beauty will be glad that the ancient Orvietans did not know anything about bacteriology, for the cathedral is a unique gem.

The medical traveler must go west of Orvieto a short distance and visit Aquapendente and in this, his birthplace, see the statue of Fabricius, the professor of anatomy of Padua, the teacher of William Harvey, who first proved the course of the circulation of the blood. Fabricius of Aquapendente demonstrated the existence of the valves in the veins. Harvey's debt to him must have been very great because the only illustration in Harvey's works is strongly reminiscent of the illustrations in Fabricius' "De venarum ostioli" (1603).

Visitors to Orvieto will usually spend the night at Perugia, and from there make a side trip to Assisi, the home of St. Francis, a matter of only an hour or more. His next stop will probably be Siena, a distance of about two hours by automobile. Siena itself presents no special objects of medical interest.

The little town of San Gimignano is only about 10 miles from Siena. It is one of the most fascinating places in the world because it is an intact walled medieval city, hardly changed in one particular since the eleventh century. In these streets Dante walked, and the Guelphs and Ghibellines fought their bloody battles.

It is peaceful enough now. Most things are reminiscent of the past, but a modern little tearoom is up-to-date enough to offer the American and English traveler tea, coffee, whisky, soda and cocktails.

One feels that it would have been pleasant to have lived in this city walled against outside danger. But it was not all safe and peaceful.

The knowing eye becomes aware of a dread danger of the Middle Ages—the plague.

In the principal church, commonly called the Duomo but in reality the Collegiata, there is a votive altar erected to Saint Fabian and Saint Sebastian. Above, there is another picture of Saint Sebastian, a fresco executed by Benozzi Gollozi. The saint stands with a placid expression on his face despite the fact that he is a veritable pincushion of arrows, while Florentine archers continue shooting at him. The altar was erected in 1348 and the painting of Saint Sebastian in 1464; and these two dates represent the visitation of the plague to San Gimignano.

When Saint Sebastian is depicted it always means that the picture or altar or statue is a votive appeal to stop the plague. If one begins to look for plague pictures one will find them at every turn.

The two great plague saints were Saint Sebastian and Saint Roche. They are often represented together, Saint Sebastian usually with an arrow either in his body or in his hand, and Saint Roche represented as a pilgrim saint, lifting up his kirtle to show the so-called plague spot, a bubo or boil in the groin.

The plague was a term probably rather generally applied to any epidemic disease. There must have been some epidemics of influenza and perhaps smallpox which were called plague, but we gather from the representation of Saint Roche that most of the medieval epidemics were bubonic plague.

THE city in which one is most frequently reminded of the plague and the plague saints is Venice. This is natural because it was a great maritime city with ships entering its port from all over, especially from the plague-infested East. No one in the Middle Ages, or later, realized the importance of quarantine. Their explanation of the plague was that it was the visitation of an angry god, and their method of prevention was to attempt to placate the god by erecting an altar or a church or a votive picture, appealing for cessation of the visitation through intercession of one or both of the plague saints.

In Venice one of the most striking architectural monuments of the city is the Church of Santa Maria Della Salute, which means St. Mary of Health, and it is distinctly a plague church. You will not understand the significance of its architecture or monuments unless you realize this.

As you enter, the most striking object is the screen of the choir, on the corners of which are statues representing the plague as a horrible figure of a hag, with tattered garments covering her bony body, being driven out of Venice by the Angel of Vengeance.

In another place in the church one of Titian's masterpieces is purely a plague picture. Saint Sebastian and Saint Roche are seen at the right, while the two physician saints, Saint Damien and Saint Casmas, are conferring and evidently discussing the plague because one of them is pointing to the plague spot on Saint Roche's leg. Saint Mark is the central figure of the picture, the patron saint of Venice, with the shadow of the plague passing across his face.

THE association of Saint Sebastian with the plague is obscure. He was, of course, an early Christian martyr, as he was a Roman officer of the praetorian guard. He had two martyrdoms, the first consisting of being bound to a stake and shot to death with arrows. Either he was miraculously resurrected or, as in some versions, he escaped and appeared before the emperor, to the latter's chagrin. He was forthwith ordered to be beaten to death with clubs in the arena. The arrows of Apollo, representing plague in the heathen mythology, seem to be the basis of association for his connection with the plague. In 680, according to a tablet in the church of Saint Peter in Vincoli, in Rome, an altar to Saint Sebastian was put up in the church; and the plague, then raging in the city, dispersed. From this, apparently, dates his popularity as a plague saint.

Saint Roche's connection with the plague is much more direct. He was born in Montpelier in 1285 of noble parentage. After his parents' death, he sold all his large estates and gave the proceeds for hospitals. *(Continued on page 1013)*

A DILIGENT SEARCH FOR THE ANCIENT REMAINS LED ONLY TO THIS DILAPIDATED LITTLE ESTABLISHMENT—ALL THAT IS LEFT OF THE FORMER GLORY OF THE BATHS OF SALERNO.

JAMES WATT, Inventor of the Spirometer

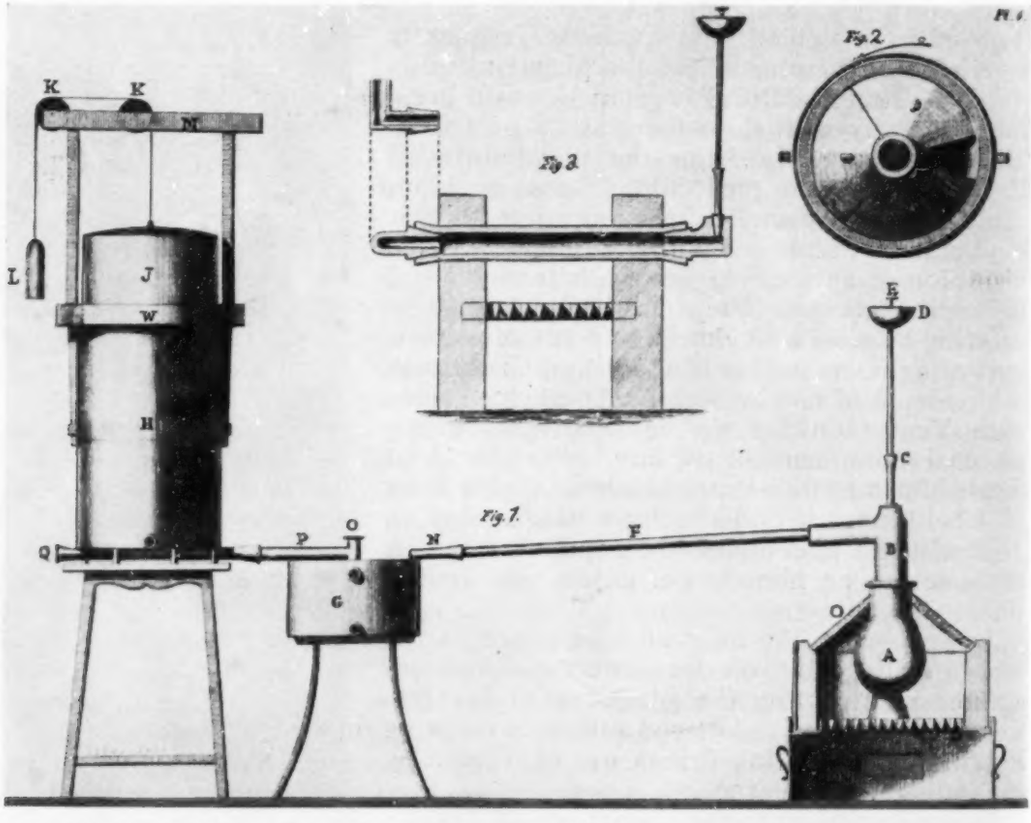
By FRANKLIN C. BING

IT WAS in 1794 that James Watt, the illustrious engineer, turned his attention to certain medical problems. The reason for this change, as indicated by his biographers, lay in the fact that he was never a robust man, nor were his children endowed with the best of health. Just a year prior to this time one of his favorite daughters had died of tuberculosis. A son was sickly and the parents feared that phthisis would develop. Why couldn't medical science do something for this dread disease?

"It appears to me," said Watt, "that if it be allowed that poisons can be carried into the system of the lungs, remedies may be thrown in by the same channel." Would the gas that had been named oxygen by Lavoisier (who had been guillotined only a short time before in that year) be of any value? There were other gases —factitious airs, Watt would have said—which Priestley, Cavendish and Black had discovered. What about them? Watt found a ready listener to his questions in Dr. Thomas Beddoes, an outstanding British clinician of the day. On June 17, 1794, in a letter to Dr. Beddoes, Watt remarked:

> Having never made the art of medicine my particular study, I should not have troubled you with my crude ideas upon the use of pneumatic medicines, if your approbation of what I mentioned to you, joined to my earnest desire to aid your endeavours, with the hope that possibly some idea might be started, which may save other parents from the sorrow that has unfortunately fallen to my lot, had not urged me to step over the bounds of my profession.

To test out his ideas it was necessary to prepare large quantities of the gases to be tried, and to develop an apparatus to hold them. In less than a month Watt wrote again to Beddoes, this time stating that the required apparatus had been designed and could be manufactured by



REPRODUCTION OF WATT'S PLANS FOR THE ORIGINAL GASOMETER FOR THE STORAGE OF LARGE AMOUNTS OF GASES. THE GAS GENERATED IN THE CAST IRON ALEMBIC (RIGHT) WAS COOLED BY PASSING THROUGH THE REFRIGERATORY (G) BEFORE ENTERING THE HYDRAULIC BELLOWS (H).

the firm of Boulton and Watt. The essential part of the equipment to store the gases was called the "hydraulic bellows"; later, it became known as the "gasometer." It consisted essentially of a counterpoised cylinder of tin, open at the bottom, closed at the top, and immersed in water. A gas could be generated by appropriate means and passed in through the water at the bottom of the cylinder; the latter, due to the counterpoise, would rise and keep the gas trapped until used. The importance of this little invention can be realized when it is recalled that before its development most of the experimental work in respiration, other than that of Lavoisier, had been done with mice and other small animals.

Watt and Beddoes performed many experiments with their improved apparatus. These are described in the little book, which is now a collector's item because of its scarcity, entitled "Considerations on the Medical Use and Production of Factitious Airs." One outcome of their work was the founding of the Medical Pneumatic Institute at Clifton near Bristol. It was there that Humphry Davy began a notable scientific career by studying the effect of breathing nitrous oxide. Some historians have traced the development of the use of general anesthetics back to the experiments of Davy at the Pneumatic Institute. He of course made use of Watt's invention, improving on it somewhat, and called it the "breathing machine." Many years later, further improvements were introduced by Hutchinson, who then coined the word "spirometer," by which name the device is now known. Some form of spirometer to hold and measure the consumption of oxygen is a part of all common outfits used in present-day determinations of basal metabolism. The spirometer is used also to measure the vital capacity of the lungs.

The year 1936 marks the two hundredth anniversary of the birth of James Watt. More than any other individual he is responsible for the development of what has been called the mechanical era, for he contributed much to the improvement of the steam engine. This other invention, the spirometer, although a more humble apparatus, nevertheless still continues to serve a useful purpose. But the hopes which led to its development were doomed to disappointment. It was soon learned through experiments that inhalation of gases was of no value in the treatment of tuberculosis.

THE DOCTOR ABROAD

(Continued from page 1011)

He journeyed to Rome as a pilgrim, attending plague victims in many places in Italy. At Piacenza he was stricken and went outside the city into a woods, where he nursed himself, his little dog miraculously bringing him a loaf of bread every day. With an angel to dress his wounds he recovered. He returned to Montpelier and after many adventures died and was buried there. He is always represented in pilgrim's garb with staff and cockleshell. About a hundred years after his death, at the time of the great church council at Constance, the plague broke out in the city. A monk from France advised that Saint Roche be importuned. The saint's image was carried in a procession through the streets, and the plague ceased. When, toward the end of the fifteenth century, Venice was afflicted with the plague, some Venetian citizens determined to possess the corpse of Saint Roche. In the guise of pilgrims a band of them went to Montpelier and stole the saint's body. On their return the church of San Rocco was built in Venice to contain the sacred remains. There Saint Roche's tomb is now exhibited.

The prayer used to importune Saint Roche was:

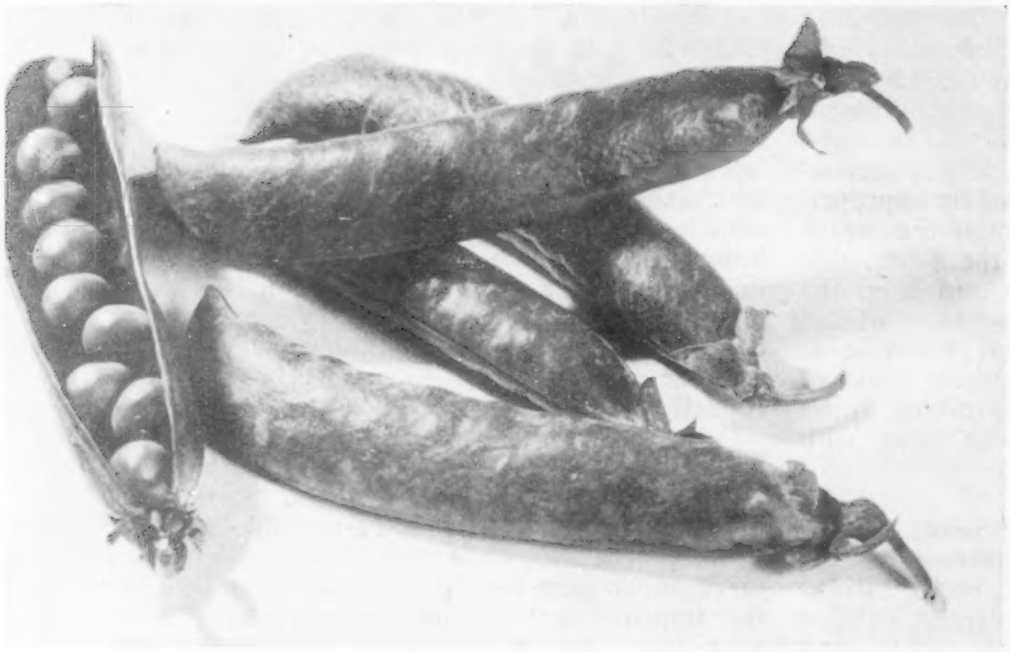
> O, Holy Rochus, thou who wert borne of noble blood and who didst distribute among the poor thy goods, and clad as a pilgrim didst proceed to Rome and in Italy hast delivered multitudes of people from the plague, and hast thyself been healed of it: I supplicate thee that thou mayst obtain from God that I may find protection against the foul air empoisoned by the plague and against eternal death. Amen.

There are three other plague churches in Venice, the Church of Saint Roche, the Church of Saint Sebastian and the Church of Saint Job (San Guibbe). The last is one of the few churches dedicated to an Old Testament saint, certainly an appropriate one to commemorate the plague.

For the complete representation of the cult of Saint Roche his church in Venice should be the object of the medical traveler's especial study.

After he has once learned their significance, the medical traveler will be interested in noting how frequently the plague saints appear. All through southern Germany, especially, little wooden statuettes of Saint Roche will bob up in the most unexpected places.

[Note.—Part 2 of Dr. Clendening's discussion of Italy as a place of historical medical interest will appear in the December issue.]



GREEN

In Season

By
E. M. GERAGHTY

"TELL ME," said Mrs. Sherman, "how you manage to get such nice fresh peas and lima beans at this time of the year. They're just as green as can be and so uniform. I know your town has a reputation for wonderful markets, but we have good markets too. I believe I'm a rather keen shopper, but I must confess that during the winter the fresh peas I get are no more like yours than chalk is like cheese. Some are big, and some are little; some are hard, and some are all right. And the color varies so—anywhere from a gray green to a more natural color, but never a bright June green such as you have. Do you buy a big lot and just pick out the best? And isn't that terribly expensive? Just what is your secret?"

"We use frozen peas," I answered.

"Frozen? How do you freeze them?"

"We don't freeze them ourselves. We buy them that way. Just ask for 'quick-frozen' peas or beans."

"Well, where do you buy them? And how do they come? I don't believe we have them at home. I never heard of them before."

"We buy ours from the Jones Market, but there are a number of other places here where you can get them. When you go home ask at your better markets. They'll have them. In the meantime, I'll ask Mr. Jackson to find out the names of the shops in your home town where these goods are sold."

"Quick-frozen . . . hm . . . well, tell me more about them. Where do they come from? How are they frozen? How do they come, by the pound? Are they easy to keep? Can you get anything besides peas and lima beans?"

"All right. I'll pretend I'm Carveth Wells or some other lecturer, and I'll give a morning talk on frozen foods.

"In the first place our quick-frozen foods come from the areas where the individual items grow at their best: peas from Maine, New York State, Washington and Oregon; lima beans from New Jersey and Oregon; cherries from Michigan, Ohio, Wisconsin and New York; strawberries from Virginia and Oregon, and peaches from Virginia, Georgia, Michigan and Oregon.

"The selection of fruits and vegetables for quick-freezing is carefully controlled by the packing company through the following measures: They provide seed of the most suitable variety of vegetables; they contract for the land from the farmers in the most favorable localities and for the crops from fruit orchards and berry farms; they watch the progress of the crop and have a production expert and a laboratory chemist on the ground at the probable time of harvesting to determine the time when the product is at its best. At the harvesting time the crop is carefully graded, and all overripe or undermature items are sold for a use other than quick-freezing. Only fresh, ripe fruits and tender vegetables of the finest quality are frozen.

"WHILE the crop has been maturing there has been another activity going on. At a spot adjacent to the acreage under cultivation a quick-freezing plant has been set up with frosters, compressors, graders and a well equipped laboratory.

"When the fruits and vegetables are at their best they are plucked, shelled, cut, picked over, washed, graded, blanched if necessary, packaged and quick-frozen within from five to six hours.

"The meat, poultry and fish used for quick-freezing are chosen just as carefully as the fruits and vegetables are. Selected cuts of meat are obtained from the best meat centers, the poultry in the best poultry sections and the fish right from the ocean. All are frozen near the point of selection.

VEGETABLES

All the Year

"So much for the selection of foods to be quick-frozen. In the actual preparation, packaging and freezing this procedure is followed.

"The meat is cut into the pieces to be used. All excess fat and bone are removed. Fish are cut into steaks or fillets. The crab and lobster meat, clams, oysters and scallops are carefully picked over, and every bit of the waste is eliminated. The viscera of the poultry are removed under the most rigid inspection. All the fruits are washed; cherries are pitted; peaches are peeled and cut in halves or sliced, and berries are hulled. Vegetables are washed many times to remove all dirt, even the grit from the spinach. The tough end is cut off from the asparagus; the stringless beans are either cut into pieces or left whole; the corn may be cut from the cob or the ears prepared for freezing whole; the tough ends of the spinach and broccoli are cut off, and the cauliflower is cut into pieces of even size.

"Next, the fruits and vegetables to be sold to the retail trade are packed solidly but carefully into cartons lined with moisture-proof cellophane. Then each package is hermetically sealed so as to prevent any evaporation of the natural juices and flavor, and so that no air may reach the contents to cause loss of natural color. The products to be sold wholesale are packed just as carefully into specially selected containers holding definite amounts.

"In one process the cartons are placed between refrigerated metal plates and held with the desired degree of evenly distributed pressure. These plates are made of an alloy and contain coils through which the freezing medium is circulated. The foods are frozen from both top and bottom, and the cartons are kept absolutely dry. When the foods come out from this 'multiplate froster' they are as solid as ice.

"After they are frozen, they are then packed in heavily insulated packing boxes, shipped to the storage plants and kept at about 5 degrees above zero until they are delivered to you.

"Then you open a neat carton with an inner wrapping of cellophane, take out the contents, cook it if it is a vegetable, meat or fish, or just defrost it if it is one of the fruits. No kitchen time to spend in washing, picking over and removing waste. Nothing to put in the waste can except the carton and the paper. Every bit you buy is edible food. It's clean food, too, because the sanitary conditions under which these foods are put up are of the best, and your package has not been open and exposed to the dirt of market areas."

"Then," said Mrs. Sherman, "you mean to tell me that those strawberries, cherries and peaches we've been having are cold storage? I thought they were all fresh fruit. They taste absolutely fresh."

"The strawberries, cherries and peaches you have had here are also quick-frozen. But please do not confuse this process I have just described with cold storage. This is an entirely different process. Cold storage is a great aid in keeping butter, eggs and other perishables as well as meats and poultry for the time which must elapse between purchase and consumption; but it could not give you the results obtainable with quick-freezing. You asked a few minutes ago whether these fruits and vegetables come by the pound. No, they come by the carton—so many ounces to each carton.

"As to their keeping, if you put them in the ice cube tray of your refrigerator when you get them, you may keep them as long as you wish, just so they stay frozen. After they are defrosted they are as perishable as the same food unfrosted. If you wish to use them the next day you may leave them in the regular storage compartment of the refrigerator overnight. They will be defrosted and ready in the morning. If you want to use them the day they are delivered to you, they will defrost at room temperature in about from three to six hours; or you may put them right on to cook. During the hot months we do not completely defrost our fruits. We serve them still partly frozen. And are they acceptable on a broiling day? Well, nearly every one who eats them wants to know where we get them and how they can plan to have them at home. That's proof, isn't it?"

"Are they very expensive?"

"Considering that you have an absolute net yield of edible food, no waste, no variation in quality, no time to spend on preparation and less time to cook, thus less fuel cost, I should say that frozen foods are no more expensive than the same fresh foods during the months when it is not possible to get these items garden-fresh. And remember this: Every carton you buy contains exactly the same amount as every other carton of the same item with the same net weight. You can depend on it. How many times have you bought out-of-season fresh peas, expecting to get about a quart of shelled peas from a peck of unshelled peas, only to find that many of the pods were not filled out and you had to send back for another peck or open a can of peas? Count up that cost when you make comparisons."

"Well, I can scarcely wait until I get home to tell my friends about these frozen foods. I know we'll all enjoy using them—but I'll be the first to try them!"

The Bookworm Gets Milk on the Brain

By PHILIP JARED

SINCE Junior (Old Sock) Answith came down with a slight attack of nervous indigestion as a result of eating one of those poisonous food "combinations" I had never noticed anything unusual about his unusually good appetite. One afternoon he came directly to the kitchen where I was tidying things up—scrubbing the floor, if you must know each deadly detail.

"Do we have any condensed milk?" he asked, halting at the edge of the wet place on the floor.

"Wh-what?" I asked, wondering what was wrong with him.

He clapped his dinky varsity freshman cap on the crown of his skull and walked out. And that was the first noticeable sign or symptom, as the doctors say, of Old Sock's attack of "lactophobia," so named by Dr. Answith later.

I was thinking of Old Sock and forgot my resentment at the cook who had gotten herself fired because she would not use enough soap or rinse the dishes in scalding water. I had tried to show her how to do those things without spoiling her lily white hands, but what can a family handy man do with a dumb biddy who wants to study Beauty Culture and Cosmetology? Both of us were "depression servants," and the answer was a supercilious sniff through a tiptilted nose, and walking-papers for her.

For a physically lazy bookworm of 17, Old Sock made a quick trip to the nearest grocery. He came back laden with a dozen little cans of evaporated milk and a fierce frown. From past experience I knew the entire family was in for a siege of mystery on his part and bantering from the family. I really was very surprised because I was never surprised at the family—usually amused or amazed.

"Going camping?" I asked facetiously, for it was quite frosty at nights.

"Your peasant mind would not understand," he replied without changing his countenance. "I want glasses," he demanded, helping himself.

"Yes," was my retort provocative, "you want glasses." I would make him talk. "Certainly, sir, is there anything else the professor wishes, sir?" He was emptying one of the cans of milk. "Shall I take the can, sir?" Old Sock tasted the evaporated milk. "Does the professor wish me to drink it for him, sir?" He mixed the milk with water and tasted it again. "A little orange juice, an egg and a bit of nutmeg, sir, will . . ."

"Scat!" spat Old Sock. Ignoring my subtle ridicule he gathered up his milk supply and prepared to depart.

"Does the professor, sir, wish me to drink this-er-concoction for him?" I asked holding it out. "Er-that is, sir, try it on the dog, as it were?"

"Pour it into your ear!" was the ungracious answer as he passed through the doorway, leaving me entirely in the dark about his intentions.

FOUR days later, at dinner, Dr. Answith was looking at Old Sock curiously when he divulged the next clue to the mystery.

"Sock," he said, "I hear among faculty gossipers that you are involved in a bootleg milk escapade. Anything to it?"

"Gangsters and pirates have hijacked it," was Sock's glum response. "I've been shanghaied," he added enigmatically.

"Very interesting, indeed," mused Dr. Answith aloud. "How so?"

"What they going to do to him, Daddy?" asked little Claribelle anxiously, not realizing she should receive Old Sock's literal statements with a grain of salt.

"I'll get even!" mumbled Old Sock vindictively, gnashing his teeth into a piece of beefsteak.

"You couldn't get even with nobody," was Old Teaser's florid observation. "Besides if ever'body got even with you, you'd be dead."

"Quiet, infant!" Old Sock was really irritated at any 9-year-olds who criticized him. Then to his father: "Why, I stopped into the Greasy Spoon for lunch about a week ago, and they dipped some milk out of a big can and served it to me in a glass with fingerprints on it. I wouldn't take it, and Ambrose got huffy. . . . Then he poured it back into the can!"

"And after that, what?" asked the doctor encouragingly. I knew he approved Old Sock's rebellion against Ambrose and his Greasy Spoon, even though they were unofficial university "institutions."

"I went to the Refectory for lunch the next day, and they were doing almost as badly, pouring it out of a can with a spout, filling station methods!"

"Well," said Mrs. Answith, "I wish some other members of the family were so sanitation-minded." She looked at Old Teaser, and he looked guiltily at his hands.

WHEN OLD SOCK MYSTERIOUSLY BOUGHT A DOZEN CANS OF EVAPORATED MILK, I KNEW THE ENTIRE FAMILY WAS IN FOR SOMETHING.

"Then," Old Sock resumed, "I asked one of the older students whether that was the way they had always served milk there. As well as he could remember, they had served it in bottles last year. I talked to the manager and almost got thrown out on my neck. . . . Said he was saving the university money, but I told him he was giving it a black eye. I could go down to some hole-in-the-wall restaurant and get served from an individual bottle at the same price. Then he got fresh and—"

"Humph!" snorted Judith. "Fresh with a freshman? Impossible!"

"Silence, child!" commanded Old Sock, filled with the vigor of his righteous indignation. "I told that smart guy I'd have him eating out of my hand some day—and it would be cleaner than his milk."

"Really!" Dr. Answith was impressed, and his eyes were twinkling. "That sounds like a lot of bluff, Junior."

"Maybe you think so, but I'll bet he doesn't, not now. I found I could drink diluted evaporated milk without making much of a face, so I took my can with me."

"I know several people," agreed his father, "who really prefer it to raw or pasteurized milk. What did you mean about being shanghaied?"

"Oh, Bigmouth Smith—his father's in the dairy business, you know—thought it was a great idea. He gave me orders to drink two cans for lunch every day. He thought I was trying to ruin his dad's business, and he would make me sick of it. He's one of the hazing sophomores."

"Um-m," mused Dr. Answith. "Did you know we are in a sort of fight with the dairies now about a standard milk ordinance?"

"I didn't then, but I do now. I got a bunch of the fellows to agree to bring their evaporated milk with them each day and to keep asking the Refrectory to serve us until they would do it

out of self defense. The boycott idea. That manager is getting sorer every day. Bigmouth has already told us we don't have to use it, but we keep on piling empty milk cans on his table every day."

"But I hear that you freshmen *insist* on being eccentric about it," said Dr. Answith. "They say you harangue the boys like a soap box orator. Is that nice?"

"'S fun anyway, and we're going to win out or carry milk all year. Every noon there's a bunch of milk cans being kicked around the Refrectory advertising us."

"And to think we have a young reformer in our family!" the doctor sighed in the direction of his wife. The sigh was followed by an inspired smile, but he was absent-minded during the remainder of the meal. He made a quiet telephone call. The morning paper carried this headline:

DOCTOR'S SON STARTS UNIVERSITY MILK BOYCOTT

I had been keeping track of that milk ordinance fight and knew that the health commissioner had been crying and howling for more inspectors and that he was doing everything he could to get the city a *clean* milk supply before the dairy companies got it for pasteurization and sale. He had told the public several times that sometimes they were getting little more than a pasteurized bacterial soup. He had authority to inspect the dairy farms and have them properly equipped, but he did not have enough inspectors to do all that and keep the city milk people pure-milk-minded. As a result, the milk had been cleaner when it came from the farm, but there was no way to keep the city dairies absolutely straight except by appeals to their consciences, and the commissioner was bitterly disappointed about their consciences. The public was beginning to feel the same way.

The baby doctors had not compromised and were advising mothers to use canned milk for baby feeding. That was why Old Sock got into difficulties with that fresh twig from the dairy family tree. And that was why the daily papers took an interest in Old Sock's freshman epidemic of lactophobia and played it up on the front page after the university newspaper had neglected it as just a fool freshman's foible.

FRESHMAN'S MILK BOYCOTT SPREADS IN UNIVERSITY

I know for a fact that Old Sock got most of his information from his father because they studied reports and ordinances together. Most of Sock's newspaper interviews were really his father's. Sock fairly blossomed with his bragging in public. Because of the uniqueness of the situation the newspapers played it up more than when the health commissioner himself spoke. Sock demanded the federal standard milk ordinance so that the health commissioner could really make the dairy people label their milk properly.

SOCK ANSWITH ACCUSES DAIRIES; WINS UNIVERSITY MILK BATTLE

Sock's lactophobia spread far beyond the university. The Women's Civic League grabbed it. The Child Conservation Association plunged into it. The Medical Society passed resolutions, and the League of Women Voters waited on the board of aldermen and asked, "How come?"

Then a governmental agency announced that large quantities of uninspected milk had been sold to the unsuspecting public. Public confidence dropped, and the sale of canned milk rose. Old Sock gloated. He twitted the Smith boy until Bigmouth began to avoid him.

The dairies knew that farmers do not like inspections very well, so they curried sympathy by raising the price of milk and gave them two parts of the raise and kept three parts of it themselves. Again the sale of canned milk went up as the public felt more outraged.

The dairies announced they would not object to more inspections if they could control them!

Old Sock became red-headed with ire. He announced to "his public" that the dairies insulted the public intelligence. Why let the prisoner at the bar select his own judge and jury; why should criminals be allowed to employ their own guards and turnkeys? No, a thousand times no! What the public needed was an ordinance which would force the dairies to label their milk for what it was and not allow them to outrage public health by putting grade "C" milk in bottles labeled "A." If uninspected milk, containing baking soda or quicklime to prevent it from souring, were to be dumped into the "A" tank, the whole tankful should be destroyed instead of being sold. It was an outrage to the public to permit any of these practices, and those guilty should be forced to "degrade" their milk as a fitting punishment, and let every customer know it.

DAIRIES MUST AGREE TO NEW ORDINANCE OR ADMIT BAD FAITH

Every one was kidding the life out of Old Sock for being "The Boy Reformer" and for getting so much newspaper notoriety. It might have caused a case of swelled head but for the kidding and because he realized he was only a publicity mouthpiece for others.

The health commissioner's new ordinance was presented to the board of aldermen, and it was properly referred to the Welfare Committee. There it remained for a month under advisement. Time was being wasted, but not by the milk interests. They had started a whispering campaign about the financial motives of the health commissioner for stirring up such a milk mess. Also, they were working by devious and secret political ways on the sympathetic hearts

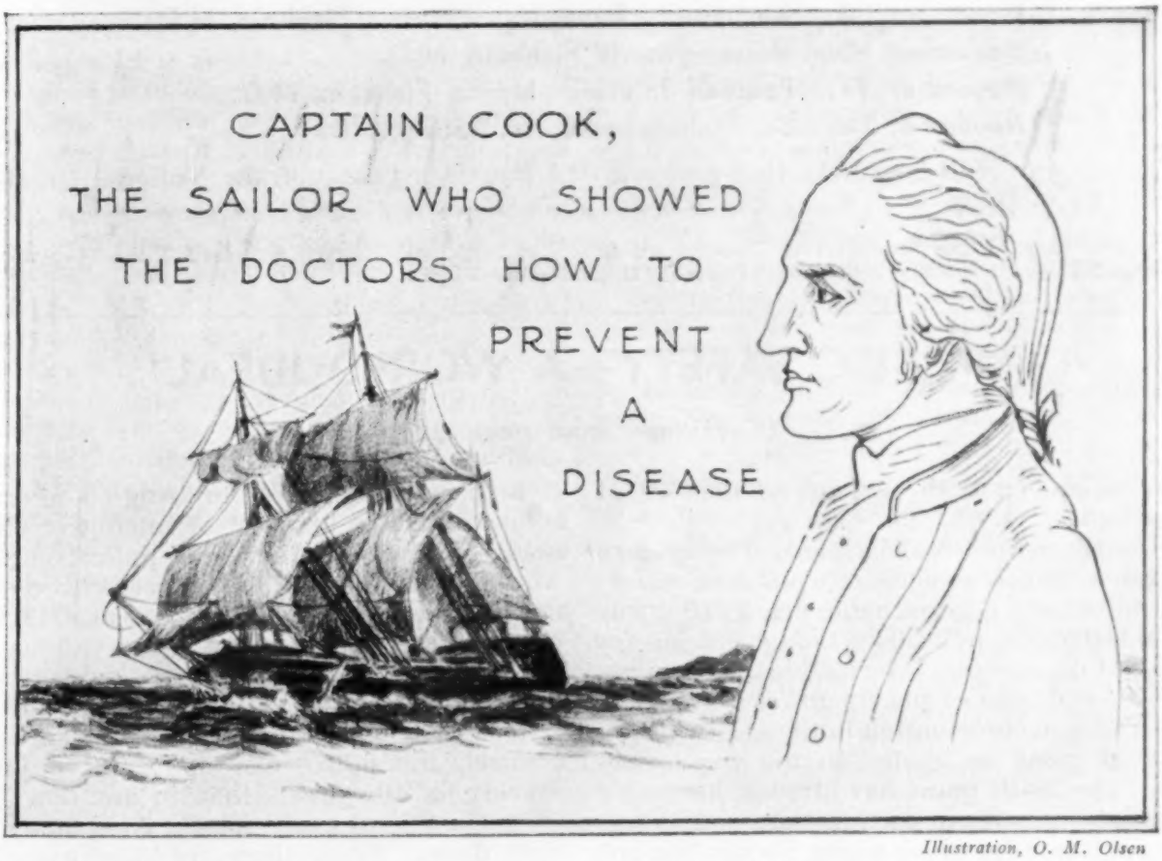
of the aldermen. You may guess what I mean. The aldermanic committee's delay drew fire from our flinty reformer. He was now the freshman class president, and he set his own Committee on Dairy Disorderly Conduct—they just had to be facetious—to work learning all they could about the men on that aldermanic committee. At a joint meeting of civic organizations, all such information was publicly pooled, and the newspaper reports caused nervous chills and high political fevers among the entire board of aldermen—but still there was no obvious action.

Then Old Sock mobilized all his boisterous cohorts and started them out one Saturday to interview the large number of dairy farmers in the city's "Milk Shed." "Tell them," he instructed, "we want to know what they think." The result was surprisingly different from the report of the officials of their own Milk Producers Association. Their incomes were down in spite of the recent price increase, because more of their milk had to be sold as "excess" to the canned milk plants. . . . The farmers wanted to talk to the aldermen themselves.

After it was all over and the hurricane of public opinion had blown the board of aldermen around in the right direction, Old Sock had no more worlds to conquer. He had won his battle against the dishonest dairymen!

Curious Stories About Health

The Fifteenth of a Series by MELVIN PRICE ISAMINGER



Illustration, O. M. Olsen

THE DOCTORS learned from a sailor how to prevent a disease so crippling that it was once called the "sailor's calamity." The famous sailor was James Cook (1728-1779), and the "sailor's calamity" was scurvy, a disease indicated by weakness, bleeding and body deformities.

Captain Cook's land and sea discoveries enlightened the geographic world. But his discovery, probably inspired by James Lind's treatise on the subject in 1754, that vegetable and fruit juices, especially if they were uncooked, would prevent the hemorrhages, spongy gums and cripplings of scurvy, was a casual though colossal achievement that sent many sailors of the high seas back to their family hearths "hale and hearty."

MODERN medical science attributes the value of certain raw vegetables and fruits in the prevention of scurvy to the vitamin C which they contain. Fruits and vegetables such as oranges, lemons, grapefruit, tomatoes, spinach, cabbage, raspberries and lettuce abound in vitamin C.

LADIES AND GENTLEMEN: YOUR HEALTH!

The American Medical Association Is on the Air Again

With dramatic action—with music—the health message is brought to you each week in thirty minutes of absorbing drama.

GOOD HEALTH—GOOD ENTERTAINMENT

The American Medical Association and the National Broadcasting Company present the second series of dramatized health broadcasts under the title YOUR HEALTH, with the following topics and speakers:

November 3. Community Sanitation—Morris Fishbein, M.D.
November 10. Noise—Morris Fishbein, M.D.
November 17. Football Injuries—Morris Fishbein, M.D.
November 24. Be Thankful—W. W. Bauer, M.D.

The program will be on the Red network and Pacific network of the National Broadcasting Company.

The time of the broadcast is Tuesday afternoon at 5 o'clock Eastern Standard Time (4 o'clock Central Time; 3 o'clock Mountain Time; 2 o'clock Pacific Time).

PUBLIC SAFETY—A WORLD IDEAL

(Continued from page 982)

would be obeyed with few or no excuses of "I didn't know . . ."

The fourth point is well in hand. The modern automobile more and more combines safety with comfort and approachable price. Highway planning, the fifth point, is a thoughtful job for thoughtful engineers. Intersections, stop signs, the width and type of pavement, all have to be considered as a contribution to the safety of that individual going so gladly on his way somewhere. The sixth point has already become a recognized necessity in certain states. A driver can never know too much about his car, the law or road courtesy. Traffic schools and definite driving tests before "graduation" from the school would eliminate many a menace from American streets and highways.

The Chicago Park Police heard George G. Traver, manager of the Chicago Safety Council, say this: "The traffic cop is no longer a man with a whistle who stands out in the center of the road and alternately directs lines of traffic across the intersection. Today he must be a specialist who is thoroughly familiar with the problem, who studies and knows that a definite technic must be applied to bring about accident reduction. The problem of intelligent enforcement lies in your hands as police officers. I would warn you that enforcement does not mean wholesale arrests of motorists. It is rather the intelligent selection of those violators who are obviously indifferent to the rights of others and who purposely violate our laws and regulations. Through courteous warning, advice and counsel, the police can do more to improve driving on our streets than in any other way."

The last point might solve a good many traffic difficulties. Where there are hundreds of drivers and thousands of innocent individuals concerned, the habitually careless and indifferent driver can wreak havoc with his selfishness. He needs to have a perpetual vacation from the wheel of an automobile. Half-way measures are seldom adaptable to this type of mentality.

Accident prevention is a world problem, and public safety is an attainable ideal. It is certainly not a far-off millenium or a faint gleam through the mist. Each year gives evidence that within the heart of man is heard and understood a universal command, "Thou shalt not kill."

Eavesdropping on the Doctor: A Case of Pneumonia

By HENRY F. STOLL

(When the scene opens, the doctor, who has just finished examining Mr. Jones, enters the living room where the patient's wife is awaiting him.)

MRS. JONES: Tell me, Doctor, is it serious? Has he pleurisy, or was that just a nervous chill? You know he is awfully nervous!

DOCTOR: Yes, I am afraid it is serious, Mrs. Jones; one doesn't have a temperature of 104 with a nervous chill. When you called me up at 6 o'clock this morning and told me he had had a chill and couldn't get his breath because of pain, I suspected pneumonia; and then when you said he had just coughed up a little blood-stained sputum, I felt pretty sure of the diagnosis. That's why I sent Miss Adams out so early to get a blood count and told you to send a specimen of sputum to the laboratory just as soon as you could obtain one.

MRS. JONES: Pneumonia! But he doesn't seem sick enough! Why, he was at business yesterday, and we played bridge last night though he said he was tired and had a little pain in his side. He had the chill about 10 o'clock. . . . My sister died from pneumonia, but she was very sick and didn't look at all like Jim does. Why, I remember she was blue and breathed very fast.

DOCTOR: Was that the first day she became ill?

MRS. JONES: Well, no. Come to think of it, she didn't seem very sick for the first three days, but then she took a turn for the worse.

DOCTOR: I suspected as much. You see, there are a lot of diseases that act just that way. The patient doesn't seem very ill at first, and then—with no warning—the illness suddenly flares up and goes like a forest fire. Diphtheria and appendicitis, for example, often are mild at the beginning. You see, pneumonia is a local disease at first, but later it breaks through nature's barriers and becomes general.

MRS. JONES: But pneumonia is terribly serious! Do you think you can save him? You'll do everything you can, won't you, Doctor?

DOCTOR: I certainly will, Mrs. Jones, and the fact that he has been ill so short a time is greatly in his favor.

(Tom Brown, Mrs. Jones' brother enters as door slams.)

MRS. JONES: Oh, Tom, I'm so glad you've come. Jim's got pneumonia! . . . Dr. Smith, this is my brother, Tom.

DOCTOR: Oh, hello, Tom! We are old friends, Mrs. Jones.

TOM: Is it a very bad case, Doctor?

DOCTOR: I wish there were some way of knowing, Tom. You see, a patient rarely seems very sick with this disease during the first few hours, and one never knows whether it is going to be a mild case that will terminate by crisis in a couple of days or whether it is a severe infection that will become progressively worse. I've been fooled so many times. The patient with an apparently hopeless case sometimes gets well, and unfortunately the one whose case seems mild at first may become much worse on the third or fourth day. It depends chiefly on whether the germs get into the blood stream. If they do, the condition is always serious, but this rarely occurs during the first day of the disease.

MRS. JONES: You won't have to take him to the hospital will you, Doctor? I'm so afraid he would catch cold, and I'd lots rather have him at home!

DOCTOR: If we find that his is a case for serum he might remain at home, as you have every facility here to keep him quiet and can have trained nurses. However, in general, I much prefer to have patients with lobar pneumonia in a hospital, as there one can more promptly recognize complications that may arise; and if special treatments are needed they can be given much better in a hospital than in the average home. Incidentally, I have never seen any harm arise from moving a patient with pneumonia to a hospital, and I'm sure early hospitalization saves a good many lives.

MRS. JONES: You know Jim likes lots of fresh air. Will he catch cold if he has the windows open?

DOCTOR: No, indeed! Give him all the fresh air he wants, but don't have the air blow directly on him.

MRS. JONES: Do you think it would do any good if I made a poultice, Doctor?

DOCTOR: Yes. I think it might relieve his pain somewhat; but put it on his side, not across the front of his chest.

MRS. JONES,: I'll get the flaxseed right away. *(She goes out.)*

TOM: I'm surprised, Doctor, that you still use poultices. I thought they were old-fashioned.

DOCTOR: They are old-fashioned, and they don't have any curative effect; but they do often relieve the pain. And, Tom, don't lose sight of the love and hope that are going into that poultice. You see, it is the only thing your sister can do.

TOM: I hadn't thought of that. By the way, why do you say not to put the poultice across his chest?

DOCTOR: Because a large poultice is heavy, and if it lies on the front of the chest a good deal of effort is used in raising it with every breath. You see, in pneumonia one must conserve every bit of strength.

TOM: I certainly am sorry this had to get Jim. He isn't very rugged you know, and I'm afraid of that disease. . . . Why is it, Doctor, that so little progress has been made in the treatment of pneumonia? I noticed in a recent health report that pneumonia caused more deaths than any other disease.

DOCTOR: That's true. But you are wrong in stating that little progress has been made in treatment.

TOM: I don't understand.

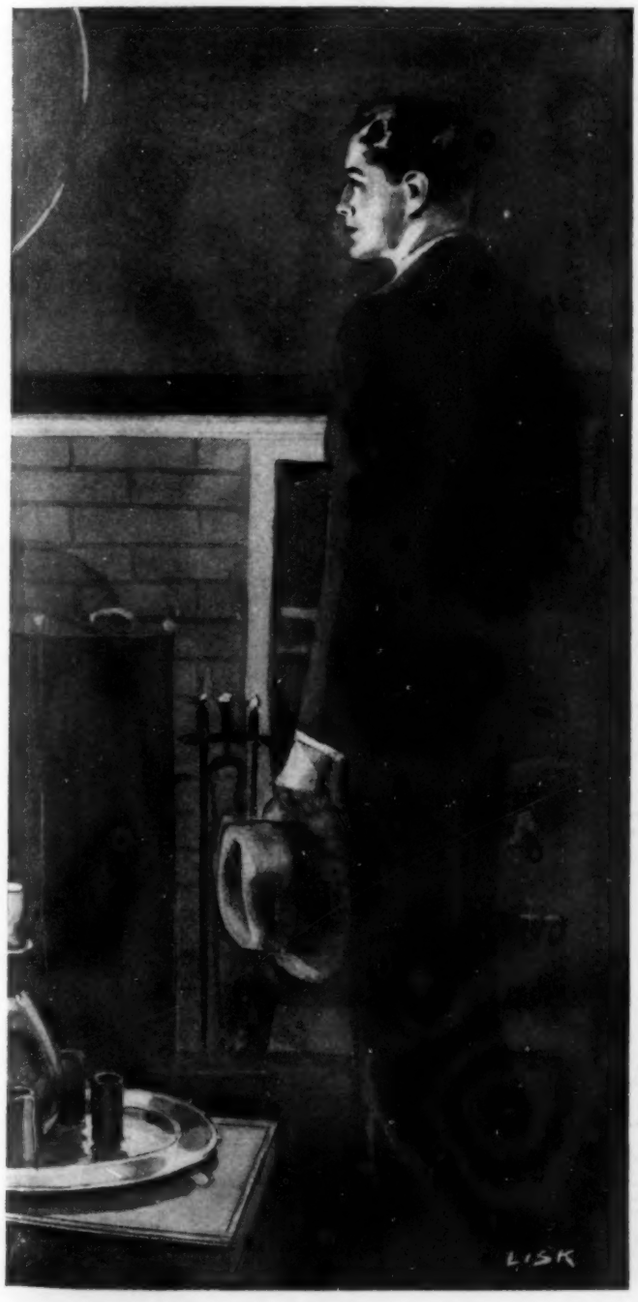
DOCTOR: Well, in the first place, there are two kinds of pneumonia. What is termed

"OH, TOM, I'M SO GLAD YOU'VE COME. DR. SMITH SAYS THAT JIM HAS CONTRACTED PNEUMONIA!"

"bronchopneumonia" is a sort of patchy affair that often involves parts of both lungs. It is responsible for more than half the deaths from pneumonia. It occurs mostly as a complication of some other disease and is generally mild. Recovery is the rule here, except in older persons, in whom there is a high mortality; in fact, it has been called "the old man's friend," as it so often affords a quiet and peaceful release from a life that has become a burden of infirmity.

TOM: That's true.

DOCTOR: Now, as the result of the various measures that prolong life, it follows that more persons develop the degenerative diseases. Consequently there are more fatal cases of bronchopneumonia. On the other hand, in the treatment of lobar pneumonia a great deal has been accomplished. This is most common in early and middle life and is apt to attack one in good health very suddenly, as it did your brother-in-law.



TOM: How can you tell he has pneumonia? You'll pardon me, Doctor; you see, I'm not doubting your diagnosis, but I'm especially interested in all the details because when I was young I wanted to study medicine. Then Father died, and so I had to go to work. Are there definite signs in the lungs in the early cases?

DOCTOR: In the typical case, such as your brother-in-law's, the symptoms almost make the diagnosis. Sometimes, however, the symptoms are less clearcut, and then the x-rays become of great assistance, since examination of the lungs at this time doesn't help much. One doesn't hear what is called bronchial breathing till the second or third day after the lung has become consolidated. During the first eighteen to twenty-four hours the breathing is essentially unchanged, though it may not be as loud as usual.

TOM: You mean that early in the disease the lung is not solid?

DOCTOR: That's exactly it. And as a matter of fact that is of the greatest significance because treatment is much more valuable if it is given early; that is, within twenty-four to forty-eight hours after the onset.

TOM: What a strange coincidence! Only last evening I was reading Ovid and ran across a sentence that as nearly as I can remember went like this: "Too late is the medicine prepared when the disease has gained strength by long delay." Pretty good for 2,000 years ago!

DOCTOR: Yes. That shows he was a keen observer as well as one of the world's most erotic writers.

TOM: Doctor, what is the treatment of pneumonia?

DOCTOR: The use of serum chiefly.

TOM: Do you use serum in all cases?

DOCTOR: Unfortunately, no. You see the pneumonia germs, or pneumococci, are in reality a large family, and as in most large families the same measures are not equally effective in controlling each one. Fortunately, in the most common type, an effective serum has been developed. For example, type I comprises about one third of all cases, and the use of serum during the first three days has cut the mortality more than 50 per cent. It seems likely that during the next few years the number of types suitable for serum will be materially increased.

TOM: How do you determine the type?

DOCTOR: By the way the capsule or shell that surrounds the germs in the patient's sputum acts when placed in contact with serum of different known types of pneumococci. I expect to hear any minute now what your brother-in-law's type is, as it is about an hour since the specimen was sent to the laboratory. To determine the type, the first bit of sputum the pneumonia patient raises should always be sent immediately to the laboratory. You see, speed is of the utmost importance because pneumonia, like acute appendicitis, is a real emergency. A few hours' delay may mean the loss of a life.

MRS. JONES *(reentering the room):* I just heard what you said, Doctor, about the serum. Tell me, why doesn't it work in all cases?

DOCTOR: Because the different types have different characteristics. For instance, in type III the death rate is high because so far no serum has been developed that is effective. This is due to the nature of the capsule that surrounds the germ. It has recently been found to be a complicated sugar that so effectively protects the germ that the serum isn't able to get in to destroy it. However, within the past year apparently a new means of destroying this capsule has been discovered at Rockefeller Institute in New York City. As a result of experimentation a serum has been developed which will save infected animals, and this probably will soon be available for use in human beings. I hope you will pardon me, Mrs. Jones, for referring to animal experimentation as I know how bitterly you feel on the subject, but it has really played an important part in the modern treatment of pneumonia.

MRS. JONES: Oh, Doctor, I see now how foolish I've been. . . . If you can get a serum to save Jim, you can use all the cats and dogs in the world!

TOM: Isn't there anything you can do for the cases in which serum can't be used?

DOCTOR: Yes. During the past few years pneumothorax treatment, by means of which air is injected into the pleural cavity, has been used with considerable success. The air surrounds and compresses the lung; and if it is used early enough in the disease, that is, within the first forty-eight hours, the results are often exceedingly gratifying. Unfortunately, adhesions sometimes interfere with the use of this treatment. It has the advantage, however, of being applicable to all types and can be used when there is a delay in determining the type, as sometimes happens when the cough is dry.

TOM: You haven't said anything about the use of oxygen. I read in a popular article last month that it did a lot of good.

MRS. JONES: They gave it to my sister, and it didn't do a bit of good.

DOCTOR: That was probably due to the way it was given. You see, we've appreciated for a long time that it would be desirable to give the patient more oxygen than ordinary air contains, but it is only within the past few years that satisfactory methods have been devised for administering it. The old funnel method they probably used for your sister was practically of no value.

TOM: How do they give it now?

DOCTOR: Sometimes it is administered by means of two small tubes that are introduced through the nose to the back of the throat and connected with an oxygen tank. This is very satisfactory, but since many patients object to the tubes, we usually use a tent that is placed over the bed. Oxygen of any desired concentration can be administered and at any desired temperature.

TOM: That certainly sounds like a big improvement over the old-fashioned method!

MRS. JONES: By the way, Doctor, may Jim have all the water he wants? I remember the doctor limited the amount my sister took; and of course when she became unconscious, she didn't take any.

DOCTOR: Not only give him all he wants, but urge him to take at least two quarts daily. One of the really big advances in the treatment of disease in recent years has been the better understanding of the need for keeping the body fluids up to normal.

TOM: But how can you do that when the patient is unconscious and can't swallow?

DOCTOR: By the use of fluids introduced into the vein. One can often keep a patient alive for several critical days with only fluids given by vein.

(The telephone rings.)

MRS. JONES: Yes, Dr. Smith is here. They want to speak to you, Doctor.

DOCTOR: That's probably the report on the sputum. This is Dr. Smith. Have you the type? It's type I? Fine! Thank you. Goodbye. That's the most favorable type for serum, Mrs. Jones. We'll start treatment at once; and if no complications set in, it is probable that your husband will be well on the road to recovery within forty-eight hours.

MRS. JONES: Do you really mean that, Doctor?

DOCTOR: Yes, Mrs. Jones, I really do. As we are able to begin treatment within twelve hours after the onset, we can be quite optimistic about the outcome.

MRS. JONES: Oh, you don't know how relieved I am to hear that!

The Meningococci

The Eighth in a Series on the Germs We Live With

By

HERBERT L. HERSCHENSOHN

IN THE *Medical and Agricultural Register* published in Boston in 1806 appeared an account of "a singular and very mortal disease which lately made its appearance in Medfield, Massachusetts." The cases cited bore a striking resemblance to a mysterious epidemic in Geneva, Switzerland, the year previous.

The disease, known as cerebrospinal fever, or meningitis, attacked its victims suddenly. A severe chill or convulsion, accompanied by a headache and stiffness of the muscles of the neck, was among the first symptoms. This was soon followed by a delirium which in some instances reached a furiously maniacal peak. The delirium gave place within a few days to a stupor, then coma and finally death.

Numerous outbreaks of this disease occurred in Europe from time to time during the nineteenth century, the most notable epidemics striking southern France, Italy, Sicily, Algiers and Great Britain. When a horrible outbreak occurred in Ireland in 1846, it was called the black death. Although frequent small outbreaks continued from time to time in various countries, a devastating epidemic lingered in Portugal from 1901 to 1903. Two years later the epidemic reached alarming proportions in New York City. It was quickly followed by an outbreak in Scotland spreading once again into Ireland. In Belfast the epidemic was so severe that among 623 cases there were 495 deaths. One of the most extensive American epidemics occurred in 1911-1912 in the southwestern part of the United States. During the World War numerous cases were reported in the concentration camps.

It was in 1887 that Anton Weichselbaum of Germany discovered a germ in the spinal fluid in six cases of meningitis. He noticed that the germs were found in the interior of the pus cells, where they congregated in pairs. Accordingly he named them the diplococci intracellularis meningitidis. *Diplococci* is Greek for double berry, the appearance which they have when viewed through the microscope; *intracellularis* is Latin and refers to the presence of the germs within the cells; *meningitidis* is Greek and refers to the inflammation of a membrane, the specific membranes here alluded to being those which cover the brain and spinal cord.

CITIES, AS A RULE, ARE LESS MOLESTED THAN RURAL DISTRICTS; EPIDEMICS, WHEN THEY OCCUR, STRIKE SUCH OVERCROWDED ENVIRONMENTS AS JAILS AND TENEMENT DISTRICTS.

It requires high magnification to see the meningococci, as they measure only $\frac{1}{25,000}$ inch. Although at first glance they appear oval, closer scrutiny shows that they are kidney shaped. Almost always they are found in pairs, sometimes in groups of four or in small clusters.

Only rarely are they found singly. These germs are readily killed by any of the common disinfectants. When heated, exposed to sunlight or dried they readily succumb. In the dried state they cannot live more than a day or two, but when dried under a freezing temperature and kept frozen they can be kept alive for a number of years.

Various strains of meningococci differ in their characteristics. Some are hardier than others. Some are highly virulent, while others are barely so. Arbitrarily the germs have been described as belonging to four groups, this classification arising from the difference in characteristics among the various strains. Actually there is much overlapping of the groups.

It is believed that these germs enter the body through the nose. They are commonly found in the nasal passages and in the pharynx. Although some authorities have contended that the meningococci find their way directly from this region to the brain, there is great doubt as to such a possibility. It is more likely that the meningococci enter the blood stream and in the course of circulation around the body become attracted to and remain in the meninges, which consequently become inflamed.

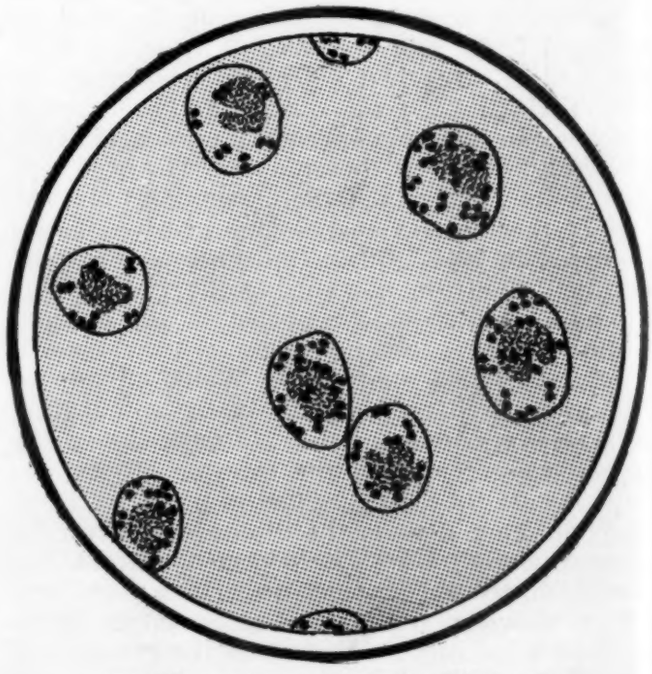
THE meninges are three membranes which cloak both the brain and the spinal cord. The outermost membrane is called the dura mater; the middle, the arachnoid, and the innermost membrane, the pia mater. The dura mater possesses great strength. In the head it is attached to the skull. In the spinal canal this membrane forms a tube which encloses the spinal cord. Here it is only loosely connected to the surrounding bony structures.

The second membrane, the arachnoid, is as thin as tissue, being exceedingly delicate and transparent. The innermost membrane, the pia mater, hugs the brain and spinal cord closely. It is also exceedingly delicate and contains many fine blood vessels. It dips down into every groove of the brain and irregularity of the spinal cord. These two membranes, more especially the pia mater, are attacked by the meningococci. At first the membrane becomes swollen and cloudy with occasional yellow patches. These patches are the "concentration camps" of the white blood cells (pus cells) of the body and are ready to fight the invasion of the meningococci. The ensuing battle between the germs and the white cells results in the formation of pus. The membranes become thickened, and adhesions with the neighboring tissues are formed. The major sites of battle are usually at the base of the brain and along the back portion of the spinal cord. In a healthy person the fluid within the spinal canal is clear. When meningococci are present the fluid becomes cloudy, sometimes entirely pus. This change in color and thickened consistency are due to the presence of large numbers of the white cells.

Because of this change in the spinal fluid, one of the most important steps in diagnosing a case of meningococcic infection is an examination of the fluid. This is done by inserting a needle between two vertebrae in the lower portion of the spinal column until the fluid oozes out. Examination under the microscope reveals many of the white cells. The germs are found on the inside of these cells.

IN THE infant, examinations of the spinal fluid are especially important because the symptoms of meningococcic infection are not as clear-cut as they are in the adult. Too often this infection is mistaken for some intestinal disturbance because abdominal distress is at times the most prominent complaint. In such instances there is likely to be an accompanying irregular fever which exists for apparently no reason at all. Thus in one case a mother complained that her baby cried almost incessantly for several days. In spite of every measure to insure the infant's comfort the crying continued. A bulging of the "soft spot" of the head gave the family physician a clue. Suspicious that some serious ailment was underlying this condition he took the infant to the hospital and made a spinal puncture. The fluid was turbid. Swarms of meningococci were found in the white cells.

Parents should readily consent to a spinal puncture if the physician believes such a procedure necessary. Nor should adult patients object to it. It is only slightly painful and not at all dangerous. The inconvenience caused by it is more than compensated for by an accurate diagnosis. This is essential if effective treat-



THE MENINGOCOCCI AS THEY APPEAR WITHIN THE WHITE CELLS IN THE SPINAL FLUID.

ment is to be instituted. Even if a meningitis is positively diagnosed the germ causing it must be identified. The meningococci are not alone in causing inflammation of the meninges. In fact the tubercle bacillus is frequently the offender. Tuberculous meningitis, however, comes on insidiously in sharp contrast to the sudden onset of meningococcic meningitis. A glance through the microscope easily distinguishes the rodshaped bacillus from the meningococcus. Likewise, other germs, such as the pneumococcus and the streptococcus, which may be the cause of the meningitis, can be distinguished.

A condition called meningismus, which is puzzling and annoyingly frequent, occurs as an accompaniment to infectious diseases which are characterized by fever. Many cases of scarlet fever, pneumonia, measles and other similar infectious diseases may thus simulate meningitis. In such instances spinal puncture is a proper routine procedure for it not only rules out germ infection of the meninges but relieves the abnormally high pressure of the spinal fluid and gives relief from the distressing symptoms.

It is believed that every patient with meningococcic meningitis is at first a carrier of the germ. The meningococci are harbored in the nose and pharynx until something happens to the body which breaks down the natural defense against the organisms. The germs then have the opportunity to invade the body and start the disease. The more virulent the germ, the less time it takes before it strikes. Thus it may happen that one person may cause another to become infected with the germ without any symptoms arising for months. In another instance unmistakable signs of an encroaching meningitis may begin within a few hours after contamination with an exceptionally "poisonous" meningococcus. The average incubation period is a few days.

The onset of a meningococcic attack gives rise to sudden symptoms. Children may be stricken while at play. The prostration and fever force the victim to bed. In infants the disease is ushered in by a convulsion; in adults, by a chill. In more than half the cases, vomiting occurs shortly after the onset. Because there is abdominal pain there is sometimes confusion in arriving at an accurate diagnosis promptly. However, there is no feeling of nausea accompanying the vomiting siege, which fortunately does not last more than a day or two.

One of the most common complaints at the beginning is headache. It may not differ from any ordinary headache at first, but its intensity increases to the point where it becomes unbearable. Any or all parts of the head may be painful. Spinal puncture gives almost immediate relief in most instances.

The most significant sign of a meningococcic meningitis is the stiffness of the neck. Any attempt to bring the head forward, no matter how gently, elicits pain. In a fully developed case the patient will usually be found lying on his side so that the head can be extended to the limit. The "nerves" of the person are "on edge." The body, supersensitive to every impression, is tender all over. The eyes are unable to bear bright light, and the ears cannot tolerate noises which ordinarily would receive little attention.

It is not inevitable that the presence of the meningococci in the blood stream will cause an infection of the meninges. In other words, a person can become seriously ill because of the presence of these germs without showing any signs of a meningitis. Yet the presence of these microorganisms can cause pain in the joints (rheumatism) or perhaps pleurisy or pneumonia. Serious inflammation of the entire eye has been caused by the meningococci.

The difficulty of distinguishing an infection by the meningococci from one caused by some of the other germs is already apparent, but there is, among the significant symptoms, a skin eruption in about half the cases. The eruption is a hemorrhagic one, caused by the oozing of blood under the skin. Some spots are as small as insect bites; others are extensive blotches. As a rule the more severe the eruption, the more severe is the case, but it by no means foretells the outcome.

The meningococci attack children far more frequently than they do adults. Most of the cases occur in late winter and early spring. Cities, as a rule, are less molested than rural districts. Epidemics, when they occur, strike overcrowded environments such as jails, army barracks and tenement districts. The sudden appearance of epidemics of meningococcic meningitis simultaneously in widely separated parts of the world has always been a mysterious phenomenon for which no satisfactory explanation has yet been offered.

The recent development of a new antitoxin is reported to reduce the mortality of meningococcic meningitis as much as 50 per cent. It also reduces the duration of the attacks. Even when there are no epidemics, out of every hundred thousand persons in the United States about twenty-five succumb to the meningococci every year, and of these, two cases can be expected to end fatally. Only a quarter of a century ago the death rate was as high as twelve for every hundred thousand persons. There can be no doubt that the steady warfare against these germs will eventually make the mortality rate almost negligible.

[Note.—In the December issue, Dr. Herschensohn will discuss Spirochaeta pallida, the causative organism of syphilis.]

SWEET TOOTH JOE

By
INEZ
JENKINS

BY THE END OF THE SECOND WEEK, POOR NIP AND TUCK WERE BOTH VERY SICK LITTLE WHITE RATS.

NELLE PARNAM

"YOU KNOW, George," Joe's mother complained at breakfast, "Joe just doesn't have any appetite at all. I do get so tired hearing him say 'I'm not hungry, Mother.' I know that it's because he eats too much candy, but his grandfather and Aunt Judith just will give him nickels to spend."

Uncle George said, "Well," which might have meant any one of several answers. His mother sighed, and Joe just went right on jabbing his oatmeal indifferently with his spoon and eating not one single bite.

After lunch, which Joe didn't like because there were carrots and baked potatoes and great long stems of asparagus with cream sauce that Mother called a vegetable lunch, Uncle George asked Joe whether he wouldn't like to go home with him for a two or three week visit.

Uncle George was some kind of a doctor, only he didn't doctor sick people to make them well. He found out just what kind of food they needed and told the other doctors about it. Joe had heard Mother telling some ladies that her brother was coming to visit them. She had told them quite proudly that he was a scientist and worked at the university.

It was a grand day to ride. Joe enjoyed every bit of the trip home with Uncle George. Uncle George had a way of making a boy feel quite grown up when he talked to him, as if he really knew quite as much as a grown person.

Uncle George's home was large and low and had bright green shutters at all the shining clean windows. There was the biggest yard and so many places for a boy to play.

"Before we take off our coats," Uncle George was saying, "let's go to the garage. I have something to show you."

Uncle George pushed the big sliding garage doors open, and there in a great big room, as toasty warm as could be, was a long row of cages in which were tiny bright-eyed white rats. In some cages there were two, in some four and in others six.

Uncle George stopped before one cage that held two scampering little fellows and began talking so affectionately that poor puzzled Joe began looking about to see whether there were any other real people in the room. Uncle George was telling them that he was sorry about something.

"I hate to do this to you old fellows," he said, then went right on to another cage. "We're going to be good to *you* this time," he told the two little rats which hurried right up to the door of the cage in the friendliest way.

"I want you to help me," Uncle George told Joe as if he quite depended on his young nephew. "We shall try to learn something about the food we eat by feeding these little rats. We shall have to feed them for two weeks, then I am sure we'll see which foods are really good for them and, I believe, good for us too."

THE two rats that Uncle George had last spoken to (this time he called them Tom and Jerry) were given two generous slices of crisp raw carrots and two nice squares of golden cheese. The first two rats (and this time Uncle George called them Nip and Tuck) were given exactly the same as Tom and Jerry except that they were also each given a large piece of chocolate candy.

Joe wondered whether Uncle George were not slighting Tom and Jerry, but he didn't say a word to Uncle George about it. My goodness, no! He was company!

After supper, at which Joe had eaten two large pieces of cake and just a very little of his vegetable, Uncle George said that they must go to feed the rats.

Tom and Jerry had eaten every bit of their lunch, but Nip and Tuck had only nibbled their cheese, and their carrot lay wilted in the bottom of the cage. But the candy was *every bit* gone —not even a smell was left.

Uncle George said not a single word but gave Nip and Tuck a nice square of cake, the very kind that Joe had had for his supper, and it was good! They were also given the golden brown yolk of a hard cooked egg and a nice frilly leaf of lettuce; but be it said, they paid not the slightest attention to their lettuce and egg but greedily began eating the cake and the *frosting first* too.

Tom and Jerry had lettuce and egg for their supper also, and if they felt abused because they were given no cake they did not let on.

Uncle George and Joe went into the house and settled themselves for a pleasant evening in the library. Uncle George wrote in a big book that told all about minerals and vitamins. Uncle George was such a fine fellow that Joe couldn't possibly see why he wasted his time on such foolishness.

Early in the evening, Mrs. Murphy, Uncle George's housekeeper, brought in a bowl of shiny red apples and another of hot buttered popcorn. Joe would much rather have had a plate of candy; but he didn't want to hurt Uncle George's feelings, so he ate an apple and some of the popcorn and said that it was very good.

THE next morning they went to feed the rats and found them all skipping around their cages.

Tom and Jerry had eaten all their supper, but Nip and Tuck had only nibbled their egg and had not tasted their lettuce. There wasn't a sign of cake left in their cage, but they were scampering about, seeming to be quite as well and happy as Tom and Jerry.

It doesn't really hurt a fellow to eat all the sweet things he wants whenever he wants them, Joe thought to himself; but he didn't tell Uncle George what he was thinking.

Every day for a week they fed the little rats twice a day, giving them whole grains and cheese and nice leafy vegetables but also giving Nip and Tuck a great deal of candy and other sweet things too.

By the end of the week, Nip and Tuck did not scamper about as much as Tom and Jerry, and their hair looked a little bit rough and did not shine as it had before they were given their new diet.

Uncle George did not say a word about how the rats were looking; but Joe was really a bright boy, and of course he could see for himself.

BY THE middle of the second week, Nip had stopped coming to the door of the cage to meet them as all the rats had done, and by the last of the second week poor Tuck was a very sick rat.

Joe was to go home the next day, but he was so afraid Tuck would not get well that he wanted to telephone to his mother and ask her whether he might not stay longer. Uncle George assured him that by giving the little rat the best of care he would soon have him well and skipping about the cage again.

Perhaps it was because Joe was going home the next day that Uncle George felt especially indulgent toward him, for he said at supper, "Would you like another piece of cake, Joe?"

"No, thank you," Joe spoke up quickly, "but I would like another dish of carrots."

What was most amazing, Uncle George asked Joe that evening whether he wouldn't like to have Mrs. Murphy make them a plate of fudge.

"I'd rather have an apple," Joe surprised his uncle.

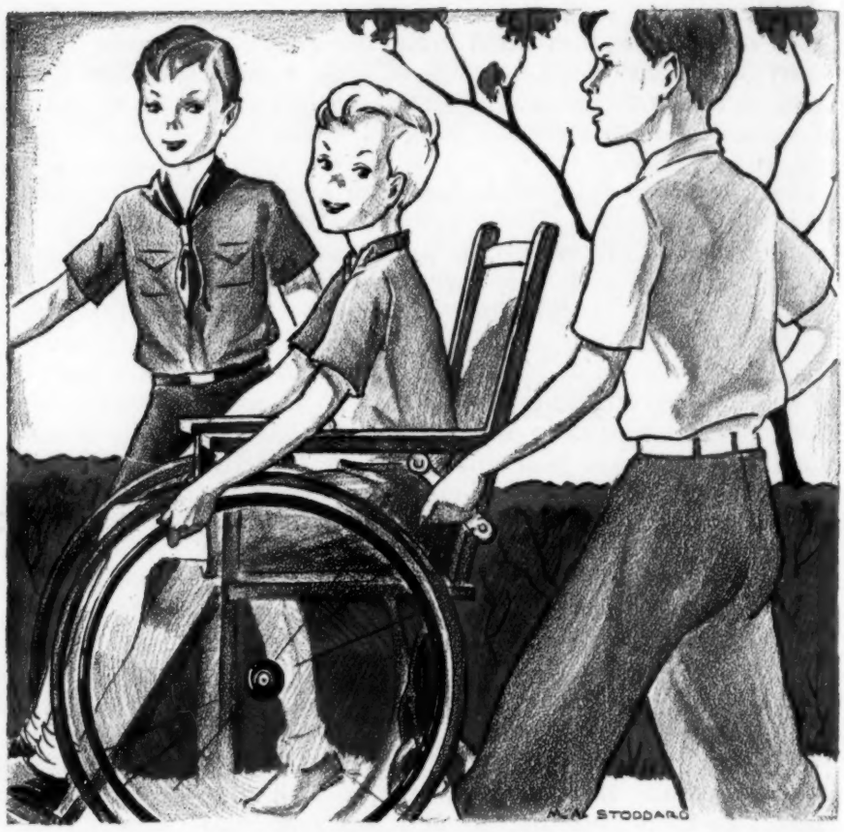
Joe was really a very bright little boy.

• BILLY •

The Story of a Hike in a Wheel Chair

By

ELIZABETH HAWES EGBERT



SO BILLY STARTED OFF, WITH EDWARD AND JAKE WALKING BESIDE HIM, ON THE LONG "HIKE" WHICH HE NEEDED TO PASS THE SCOUT TEST.

BILLY gave the lever of his cart a final pull and rolled to a stop by a bench in Neptune Park.

Seated on the bench, his brother Edward and his friend Jake Blanton were discussing the meeting which was to take place that night for the purpose of organizing a Boy Scout troop.

"What will be the name of our troop?" asked Billy, quickly catching the drift of the conversation.

"I don't know yet, Billy," said Jake, "but we think we'll call it the Fox Patrol."

"Of course, Billy, you can't be a Boy Scout," said John Smith, who had just joined the group.

"Why not?" bristled Billy.

"Because you can't walk, and you can't run, and you can't swim," bluntly answered John. "So of course you couldn't pass the tests."

"Well!" said Billy stoutly, "I guess I can too be a Boy Scout! And I'll show you how I can pass the tests! Just give me a whack at 'em!"

Since the dread infantile paralysis had come on him six years before, Billy had lived his waking hours in a wheel chair. His father and mother had taken him to Warm Springs for treatment; and there he had formed a strong friendship with a man who, like himself, was a victim of this dread disease, and also, like him, was making a fight against its ravages.

Billy spent many a delightful hour in the companionship of this new friend. But as his friend's hopes of recovery had brightened, Billy's had become less promising; and soon he had been gently led to the understanding that he would never be able to run and play with other boys again. Billy had taken the pitiful tidings with the usual optimism of a child and had thrilled with delight when he was given a new shiny wheel chair in which to propel himself about.

After returning to his beautiful sea island home, Billy had exchanged several letters with his new friend. One day a letter had arrived from him. "It's from the President, Mother! It's from the President!" cried Billy, trembling with excitement. "He wants me to come visit him, Mother! To the White House, Mother, to visit him!" For Billy's friend was Franklin Delano Roosevelt, by this time President of the United States.

But Billy did not go to visit his friend at the White House; nor would he explain to his friend that now there was no money with which to travel. He would not sadden this great man by telling him that now there was no father to help care for the family; nor that he, Billy, had never been able to go to school or even to have a tutor. He scrawled his little note of thanks and regrets, and was none the less happy that he had had the honor of the invitation.

ALL THAT had been in the past. In the meantime, Billy had learned to do many things that brought pleasure to himself and benefit to his mother. They had given up their home on the old plantation and had taken a little cottage near the beach, where in summer his mother could rent some extra rooms. Billy had learned to knit. He knit little fancy mats and things for Christmas and summer trade in a gift shop.

He learned to help his mother blanch and salt peanuts, which he sold in summer, sitting in his chair by a stand in the big casino. He became an authority on stamps, buying and selling at some profit and adding greatly to his knowledge of history.

Now had come this new interest in life, the new Boy Scout troop.

The hall above the drug store at St. Simons Pier was ablaze with light on the night of their first meeting. The boy population of the island filed in at the hour appointed. Twelve of them there were, all talking at once.

"Meeting please come to order!" commanded their leader, Captain Dick Everett, rapping on the table with a paper weight. A heavy tread on the stair outside made them pause. One of the boys opened the door to see who it was, and in staggered Sam, Billy's Negro boy, bearing Billy in his arms. Behind them came another Negro lad, struggling under the weight of Billy's wheel chair.

As soon as Billy was seated in his chair in the front row the meeting was opened. Captain Dick had no trouble in quieting the boys and getting their attention. They all had been looking forward to this event of becoming Scouts. Captain Dick gave them a brief history of the Scout Movement, what it had accomplished and what it hoped to do. Plans were made and officers chosen. When the meeting closed, all made a rush for the door and started scrambling down the stairs; but Edward and Jake remembered Billy and, whistling for Sam to come, went back to help get him safely down the steep stairs.

EARLY next morning, Billy was awake and clamoring to be dressed. Breakfast over, he made this startling announcement: "Mother, I'm going to push myself in my cart today all the way from the casino to the end of the drive on Sea Island."

"Do you mean the casino on Sea Island, Billy? That is 3 miles, is it not?"

"No, Mother, all the way from the Casino at St. Simons Pier. It's 6 miles from there to Sea Island, and 2½ more, the length of the drive.

"Why do you wish to do that, Billy? It is too far."

"I have to do it, Mother. It's a test. I am supposed to walk 7 miles. Well, if I push my cart 8½ miles maybe they will accept it as a 'hike.'"

"Maybe they will, Billy. I'll have to let you try it."

"Anyway, Mother, it is almost like rowing a boat; I know it will at least count the same as that."

So it was that Billy started off, with Edward and Jake walking along with him.

The day was hot. As the glow of the sun faded that evening and the boys had not yet returned, Billy's mother began to be uneasy. "Of course," she thought as she set about preparing the evening meal, "nothing could have happened to them. Billy is a well known figure here on the island, and every one looks out for him. But I do wish they would come!"

Supper was soon ready. The boys would be starving, she knew. She had prepared just the things they would like: a dish of hot grits, a platter of broiled fish, hot biscuits and a sweet potato pie.

Suddenly the door flew open. In dashed Edward. Up the ramp rolled Billy. "Gee, Mother, what smells so good?" from Edward, and "Whee, am I hungry?" from Billy, whose arms and legs were burned from sun and wind but whose face above his tired little body was aglow with victory.

A DAZZLING sun greeted Billy as he awoke next morning. "Hurry and get me up, Mother," he called. "Today I must take my swimming test."

"Why, Billy," his mother protested, bringing in his breakfast tray, "aren't you too tired after that long hike yesterday?" (She nearly said "ride".) "And how will you manage the swimming test, Billy?"

"You'll see," promised Billy, almost gobbling his cereal. "Get me my bathing trunks, please, Mother, and call Sam."

When Billy and Sam arrived at the pier they found the tide high and the water not too rough. Sam drew Billy's cart up the beach a little way to get clear of the bulkhead. Jake and Edward were already there and had arranged with the lighthouse keeper's son to referee them.

It took the three boys to get Billy from his cart out into water deep enough and to steady him on his back till he could float by himself. They marked off a course, and Billy, with outstretched hands, propelled himself down and up, up and down the course, the other boys swimming along beside him. Finally he found that he could float easily over the incoming waves, and he was thoroughly enjoying it. He wasn't much for speed, for his little arms and hands were not strong enough to propel his comparatively heavy body at a rapid rate; but again, a tired but happy boy went home with a ravenous appetite for dinner. His bright eyes shone out from a face like a sunburst. He was sore all over now from sunburn.

All that week, Billy was engrossed in his Scout Manual. On the evening before the next meeting, Dr. Brown called to give him final instruction in first aid; and a very triumphant Billy presented himself before the members of the Fox Patrol as a full-fledged Scout.

"I made it, Mother!" he said as she came in that night to see whether he was comfortable; and a few moments later, as he dropped off to sleep, she heard him murmur, "I made it, Mother!"

THE TRANSPARENT WOMAN

Recently unveiled at the New York Museum of Science and Industry in Rockefeller Center, the Camp Transparent Woman presents a dramatic educational exhibit through which the intricate structure and perfectly functioning mechanism of the human body may be visualized.

The figure, which is life size and constructed in correct proportions, is made entirely of a transparent material, so that every organ, even in the delicately designed, complex circulatory system, is clearly visible in three dimensions.

At the close of the current public exhibition the Transparent Woman will be taken on a nation-wide public health educational tour of one hundred cities, thus affording a splendid teaching model by means of which the observer may, as though with "x-ray eyes," gain a clearer insight into the human body and how it works.

SCHOOL AND HEALTH

A Department Conducted by J. MACE ANDRESS, Ph.D.

67 Clyde Street, Newtonville, Mass.

Physical Growth as a Cause of Adolescents' Problems

THE THIRD OF A SERIES OF EDITORIALS ON UNDERSTANDING THE ADOLESCENT

ADOLESCENCE is a period of accelerated physical growth and change. With the exception of the prenatal period, at no time in the life of the individual is physical growth so rapid. Between the ages of 12 and 17 the increase in weight is equivalent to that of the entire ten years previous. The increase in height, though slighter, is more rapidly undergone. Some children become conspicuous because of the rapidity of their growth; they may gain as much as 6 inches in height and 25 pounds in weight in a single year.

Students of adolescence were once inclined to think that this period of rapid physical development indicated a corresponding acceleration in mental growth. There are few facts to substantiate this belief. No magic changes in personality occur at puberty. On the contrary the growth of the human organism is fairly constant. At the threshold of adolescence the stupid do not begin suddenly to become bright, nor do the bright become dull. However, the physical development during adolescence may be so rapid that it constitutes for the growing boy or girl and his parents and teachers a serious problem.

MOST adults fail to understand that the task of the adolescent in adjusting himself to the changes in his own body is most bewildering. During the preadolescent period the child is a fairly well stabilized individual. He has become used to his size and understands what he can and cannot do with his body. Then rather suddenly he finds that he knocks over things when he reaches for them. His longer legs get him to objects in an unexpectedly short time. It is not unusual for an adult to be nearly run down by an adolescent who is crossing the room. It requires considerable time for adolescents to get used to being bigger than they feel that they ought to be. Much of this learning must be by trial and error. During this experimentation they are likely to become extremely sensitive to their size, especially if they are taller or stouter than their companions of the same age. In order to avoid implanting feelings of inferiority great tact must be used in weighing and measuring children who are overgrown.

The mere change of perception due to growth greatly influences the behavior of children. The adolescent no longer finds it necessary to look up to adults, and in some cases he may even look down on those to whom he once felt inferior. Dr. Sidney L. Pressey believes that certain cases of incorrigibility are due to the realization by boys that they have at last grown to the point where they can fight back.

THE fact that boys and girls do not have their periods of accelerated growth at the same time is responsible for certain peculiarities of behavior. The maximum adolescent rate is reached by girls usually between the ages of 11 and 12, and by boys about three years later, between 14 and 15. Between the ages of 11 and 14 the average girl is both taller and heavier than a boy of the corresponding age. This general physical superiority of girls over boys is not always accepted with grace by the boys, who as a defense reaction may look on them with scorn and refuse to admit them to their companionship.

Not only is there a general acceleration of growth at adolescence, but the rate of growth of the various parts of the body proceeds unevenly. Each structure has its own relative speed of growth and goes ahead without much relation to the rate of the other parts. As a result, there is often a lack of balance among the muscles, bones, heart, brain, lungs and viscera. Early in adolescence the feet and hands attain a disproportionate size. The nose seems to grow along with the feet and hands. Sometimes it seems to the boy or girl to push forward to almost huge proportions. More than one adolescent has spent miserable hours looking at his nose in the mirror and not realizing that in due time it would assume with natural growth its proper proportion in a well formed face. Children sometimes refuse to go to public places because of some marked physical change such as that in the voice.

BOTH boys and girls have to learn to face problems peculiar to their sex. Girls pass through the disagreeable experience of the beginning and continuation of menstruation. Boys have to learn and accept the habit of shaving. This is often a cause of anxiety. They are troubled as to when they ought to start and annoyed by the remarks of other people. Parents may intensify their embarrassment by a lack of tact.

What a curious world opens up to the adolescent. He is called on to grapple with a shifting world that is most confusing. Naturally mistakes are made, and the adult who looks down from his stable world, having forgotten his own anxieties of adolescence, may be amused or may look with scorn on the flounderings of youth. He may punish youth for lack of poise and skill. At this time of life, boys and girls need to be understood. When teachers understand the physical basis of clumsiness, malcoordination, restlessness, irritability and emotional outbursts they are able to guide youth with sympathy. Patience and the mere waiting for growth will help to solve many problems of adolescence.

IS YOUR CLASSROOM A SAFE PLACE FOR PLAY AND WORK?

FLORENCE NELSON
Editor, Safety Education Magazine
NEW YORK CITY

Many preventable accidents occur in classrooms. Miss Nelson in the third article of her series on safety tells us about these accidents and the kind of training necessary for their prevention.

LAST month it was suggested that a modern, well equipped school building is not necessarily a safe school building. In any school, good housekeeping and careful supervision of pupil activities are essential if accidents are to be avoided.

The easy, informal and thoroughly natural atmosphere of the modern school is a happy change from the days of rigid discipline, when children filed through corridors in strict formation or sat like ramrods at conventional rows of desks. On the other hand, this treatment of children as individuals need not imply a policy of "every child for himself." It must be understood that certain regulations are necessary for the safety of the group.

The latest National Safety Council studies, based on detailed reports from school systems with more than 700,000 enrolments, show that 19 per cent of the student accidents occur inside school buildings and 19 per cent on school grounds. The accidents in school buildings are classified as follows:

Gymnasium	35 per cent
Corridors and stairs	20 per cent
Vocational shops	14 per cent
Classrooms	13 per cent
Others	18 per cent

Below the sixth grade, school building accidents constitute only about 10 per cent of the grade accident totals; in the sixth grade they run about 15 per cent, in the seventh about 20 per cent and in the higher grades from 25 to 35 per cent. This increase in importance in the higher grades is attributable to two factors: the gymnasium and the vocational shops. Practically all pupils injured in these areas are in the sixth and higher grades.

If, during October, pupils have made a survey of the school premises to discover and remove fire hazards, their interest will quite naturally extend to other safety problems relating to the building. It is therefore suggested that this subject be used as the basis of the work for November.

On a recent visit to a primary grade classroom I was charmed with its sunny, attractive and thoroughly happy atmosphere. The windows were filled with plants and flowers; gay posters and interesting pictures decorated the walls. A reading table in the corner overflowed with books. "Lucky children," I said to myself, "whose teacher can create such a pleasant setting for the day's activities."

One of the little boys was eager to show me his particular collection of plants. As he hurried across to the window he tripped over a pile of books on the floor and fell headlong, striking his chin sharply on the edge of a chair. It was not a serious accident, but it was an unpleasant and unnecessary interruption, and it made me thoughtful. When a compress had been applied to the injured chin and work was resumed I observed the arrangement of the classroom more carefully. It struck me that a number of accident hazards might have been removed without in any way detracting from the charm of the room.

Since classroom accidents occur chiefly in the primary grades, it is advisable for the teacher of young children to consider the following:

1. Are chairs, desks and other furniture in good condition? Are they free from loose parts, splinters, and factors which may produce injury?

2. Is furniture arranged so that pupils may move about the room easily?

3. Are window shades fastened securely? (Shade rollers falling from their sockets have inflicted serious head and face injuries.)

4. Are safe places provided for scissors and other tools when they are not in use?

5. Are regulations for the fire drill thoroughly understood by all the children?

6. Are children trained to obey an order promptly, so that no time will be lost in case of emergency?

It is a good idea to have each pupil take his turn as "safety inspector" for the classroom. The inspector sees that certain safe practices are followed:

1. Keep chairs under tables, or where they will not interfere with movement about the room.

2. Keep books and other objects off the floor.

3. Keep feet under tables or desks to avoid tripping.

4. Put tools away in proper place.

5. Use scissors and other tools in proper way.

6. Keep closets in order. Remove all trash promptly.

7. Keep exits clear. Enter and leave room in quiet orderly manner.

Children should be encouraged to discuss the reasons for these safety regulations and to develop a desirable attitude toward them. Innumerable opportunities will arise for emphasizing safety during the regular activities of the school day.

Other suggestions for the primary grades are:

1. Plan safe games for the recess period.

2. Practice the proper way to enter and leave the school building.

3. Demonstrate safe behavior at the drinking fountain.

4. Report to the Junior Safety Council the safe practices observed in the classroom.

Safety patrols are used in many school buildings for duty in corridors and on stairways. They see that pupils keep to the right, grasp the handrail on the stairs and avoid running, pushing or rough play which might cause falls.

Undoubtedly many accidents in halls and on stairways are due to worn and slippery surfaces, poor lighting, narrow exits and other defects in the structure of the building. While it is difficult these days to secure funds for repairs and remodeling, it is not always impossible. Many deplorable conditions existing in school buildings are the result of indifference or neglect. If sufficient interest is aroused in the school community it is usually possible to secure money for really necessary repairs or safeguards.

A school in a certain small town had no fire escape, and one was badly needed. The teachers decided to try to raise some money for this purpose. They consulted a representative of a safety organization. "We should like," they said, "to plan some sort of safety program or entertainment and charge admission. Can you make some suggestions?"

"The provision of a fire escape is the responsibility of the board of education," was the reply. "Why not try to arouse some community interest in a safe school building? Has the matter ever been given real attention?"

The teachers decided to put the problem squarely up to the school authorities and the parents. It was not long before the funds were appropriated and the fire escape was provided in addition to other necessary improvements.

Since the largest number of school building accidents occur in the gymnasium, there is need for concentrating on the safety problems of this particular area. Is the apparatus in good condition? Are the floors provided with a nonskid surface? Are proper shoes required? Do pupils use the gym only under adequate supervision? Are they allowed to attempt unnecessarily dangerous stunts?

One of the tragic fatal accidents reported to the National Safety Council last year occurred in a gymnasium when a twelfth grade

student attempted to make a front somersault from a springboard. He landed on his neck and shoulders, breaking both neck and back.

Strict regulations as to the use of gymnasium and pool areas should be enforced. Two boys who disregarded rules about the use of a certain pool were involved in a fatal accident. One boy lingered in the pool after his class had gone to the shower room. Another boy, entering in advance of the next class, dove into the pool, not knowing that the first boy was swimming under water. Their heads collided with great force, and one of the boys died of his injury.

In this case two boys disregarded regulations; there was no instructor on duty at the moment to give a warning—a series of circumstances which might easily have been avoided under more strict enforcement of safety measures.

Students in the upper grades should be encouraged to take responsibility for safety regulations in the gymnasium and pool. They can perform patrol and inspection service and in general aid in the safe conduct of activities.

In a study made by Mr. Wayne M. Judy of the vocational school shops in Iowa, some interesting and significant facts were revealed. During sixteen months, 726 accidents occurred in 249 shops. Of these, 113 required treatment by a physician; 18 resulted in the amputation of some part of the body, and 6 caused the loss of one eye or both.

The study further revealed that dangerous machines were not the primary cause of these accidents. Hand tools, which are not considered dangerous but which are universally used, caused 557 injuries, while power driven machines caused only 156. "Pupil's carelessness" was listed as the cause of 523 accidents.

Mr. Judy and others who have made studies of conditions in school shops feel that more expert inspection is needed and that the instructors themselves should take greater responsibility for the prevention of accidents. Naturally a thoroughgoing program of safety education for the students is the third requisite.

Simple safety regulations should be followed in every shop. A student safety inspector or engineer should be appointed. Each member of the class may serve in turn. The inspector should check all tools and equipment; see that tools are kept in the proper place; enforce the use of guards, goggles and other protective devices; see that operators of machines roll their sleeves above the elbows, remove ties and coats and wear no loose clothing; have charge of first aid kit, and report all accidents to the instructor.

TEACHING HEALTH IN A NEW COLLEGE

BERTHA STREETER
DETROIT

Rollins College is one of the new colleges which has attracted so much attention within the last few years. Influenced by the reforms in our elementary schools, they are trying to work out a new philosophy and practice in collegiate education. Miss Streeter, a trained writer and a frequent contributor to the columns of this department, contributes this article after an actual study of conditions at the college.

PROBABLY there are few educational institutions in the country where more attention is paid to building up the health of the individual student and impressing on him the reasons for keeping himself in perfect physical trim than at Rollins College, Winter Park, Fla. Under the leadership of Hamilton Holt, former editor of *The Independent* and world peace advocate, the faculty abolished lectures and regular classes and substituted therefor a conference plan of study. Now each student gets his knowledge in his own way, guided by his "adviser," who is a member of the faculty who helps him in every way possible to get from his college life what he, as an individual, needs.

Rollins recognizes that life is many sided and that, if a student is to develop into a well rounded personality, not only must his intellect be exercised but also the emotional, vocational, philosophic, esthetic and physical sides of his life. It is folly to spend years developing all but the physical, only to have the student suddenly discover that he is physically unable to hold the position to which his intellectual pursuits have brought him.

So when the student enters Rollins College he brings with him a certificate of health made out by a physician in his home town, preferably one who has known him and his family for many years and can therefore supply information the student might consider unessential. It seems strange to many that after presenting such a statement they should be given another thorough physical and medical examination by the college physicians; but it is only by this method that the physicians and physical directors of the college can get all the information they require to enable them to outline a physical education program to meet the student's individual needs. When it is discovered that a student has a physical deficiency that should be corrected, the directors of physical education, with the approval of the college physicians, require a program to correct the deficiency shown.

The follow-up work is carried on through the physical education department where the corrective and remedial work is done that was recommended by the physicians. The department sees that the individual student gets exactly the help he needs, and the work is kept up until the defect is remedied. Throughout the year a program in health services and correctives is conducted in posture work, nutrition classes and general health.

When the present physical director for women came to Rollins some years ago it seemed to her that the women students looked quite frail. Postural defects and other physical conditions seemed to point to undernourishment as the cause of much of the trouble; so she decided that one of the first

things to do was to build up physically this part of the student body. She started what the students now refer to as the "Moo Moo Club," designed especially for students who show a marked degree of undernourishment or who have low physical resistance.

This club meets twice daily, midmorning and midafternoon, at the college dining hall. Here are set out for the members, bottles of milk and glasses of orange juice together with celery, cake or whatever the cook has at hand for a midsession snack. It is informal and seemingly enjoyable, for when members are dropped from the club they invariably beg to be taken back. Each student is given a physical and medical examination each year, and when such an examination shows that he or she no longer needs the extra milk and other food furnished at the Moo Moo Club, the student automatically drops from its membership.

Except for the few whose families live in Winter Park, all students eat at the college dining hall. Here, though few of them suspect it, special attention is paid to their diet to see that they get into the habit of eating foods that will best promote their health. Milk is a prominent beverage on the tables, for it is known that this food, in combination with the sunshine, which in Florida is available practically every day in the year, is a great builder of strong bones and teeth and good nervous systems. And even those students who never belonged to the Moo Moo Club soon learn to drink milk, for just as all are required to state on their registration card at the beginning of each term what they aim to accomplish during that period in their various studies, so they indicate there also the physical improvement for which they will strive during the same length of time.

Getting these young people outdoors into the sunshine part of each day is just as much a part of the educational plan at Rollins as the intellectual opportunities systematically offered them. The mild, dry winter and rare frosts make outdoor life possible the year around and entice every one to some form of outdoor activity. The faculty attributes to the climate much of the success that attends their program in health and physical education. The health-giving rays of the sun, for instance, are of immediate and lasting benefit to the students, many of whom come from places where summers are short and winters long.

The students participate in physical activities which will create and maintain general health ideals, each being expected to make definite

achievement in certain competitive and noncompetitive sports, some of which are required, and some optional. More advanced students are urged to choose an activity in which they are most proficient and to seek perfection in it while they have the opportunity for instruction and the companionship of fellow students for friendly competition. So students become proficient and not only in highly competitive sports like baseball, football, and basketball that cannot usually be pursued after college days, but also in tennis, golf, riding, canoeing, archery, fencing, swimming and dancing as well as in other skilled sports that may be carried over into life after college days have passed.

Recognizing the great value of outdoor interests the physical education department promotes various activities. Weekly camping excursions are made. Canoe trips are taken down the Wekiwa River into the tropical jungles where the college has a shack in which students may spend the night. Here they can get back to nature and the weird jungle noises, to say nothing of the healthful canoeing, swimming and outdoor cooking. Ocean parties are made up for the Rollins "Pelican," a big house on Coronado Beach which accommodates large groups for week-end parties or for those who may wish to go over for the ocean bathing just for the day or for fishing.

In this manner, Rollins College seeks not merely to give instruction in physical education but to make health a living reality to each and every student.

To Contributors:—*The editor of the School and Health Department will be pleased to receive articles dealing with the actual solution of concrete and practical health education problems in the school. Contributions on general theory are not solicited. Articles must not exceed 1,000 words in length. Stamps should accompany manuscripts to insure their return if rejected. All articles accepted will be paid for at regular rates. Address Editor of School and Health Department of* HYGEIA, *67 Clyde Street, Newtonville, Mass.*

OLD IDEAS IN NEW DRESS

AMY RACHAEL WHITTIER
Head of Teacher Training Department
Massachusetts School of Art
BOSTON

In this, the last of her articles on the service of art in health education, Miss Whittier illustrates how art may be used to open up a new world of expression and appreciation.

"HOW FAR that little candle throws its beam." A young teacher working for her master's degree said, in appreciation of an art course, "It opened a whole new world to me, and when I began to teach boys and girls I tried to help them to see this new world because I myself could now find art in every subject." The principles discussed in this article might easily be the result of that one teacher's candle.

The children were to make a scrapbook. There was a large collection of pictures. The teacher was allowed to choose first. After a few silent moments during which she carefully considered several pictures, she said, "This is one I must have, because it has a beautiful blue just like that which we love in the sky. I need it to look at on those days when the sky shows no blue." Then the children made their choices, giving reasons.

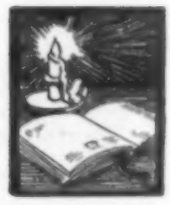
On another day she said, "We've had a present of colored papers. We'll play a new game. Find a color that makes you feel gay or happy." One group of children found happy colors and arranged them on sheets of drawing paper. After a discussion of the arrangements, the most satisfactory sets were made into a book of singing colors and sent to children in the hospital.

Another group made happy color cards for their mothers. Was it a health exercise? Was it an art exercise? Try placing a happy color card on your desk for a day, and you'll have the answer. We need more teaching of the enjoyment of color and less about technical scales and harmonies. We can live without color; many people do, but is there any one among us who would not welcome an opportunity to show this new world of health-giving beauty to others? There are colors of life, there are lines of life. Can we find them?

"Show how you run," is the command. "I'll make lines to show how your arms, your legs, your backs look in motion. See how lively they are. Make some with your crayons, your brushes or on the blackboard. Make strong lines. Stand up tall, straight and strong; lift a weight, pull or push one. Find

(Continued on page 1040)

New Books on Health



CHANGE OF LIFE IN MEN AND WOMEN

By Marie C. Stopes, D.Sc., Ph.D. Price, $2. Pp. 239. New York: G. P. Putnam's Sons, 1936.

THIS BOOK is an addition to the large number on the subject of sex which have appeared during the last few years. Although the author is not a doctor of medicine but a doctor of science and philosophy, the cover and advertisements speak of "Dr." Marie C. Stopes presumably to give the impression that the author is a physician. The author is particularly vehement because physicians do not agree with her "discoveries," most of which are not supported by any adequate evidence. Thus she asserts that men are in much more danger of serious disturbances from the climacteric than are women. She believes that rational control of the calcium content could be made one of the most ameliorating considerations for women who are passing through the complications of the menopause and that arthritis is connected with the tendency of the female to produce calcium for the use of the embryo and then when fertility is passed and the menstrual flow no longer removes it, it accumulates and that calcium is a source of the arthritic deposit. She says that a perfectly safe electrical apparatus has been constructed which seems to make it possible to apply electrical charges directly to the human system centering the current on the locality of the disease or sore . . . this apparatus can destroy the bacteria of various diseases and does also induce the growth of healthy tissue. Moreover, she recommends certain "patent medicines" and disinfectants of unestablished merit and says, "I give what amounts to a unique advertisement to these firms, for no commercial firm has ever been able to buy my recommendation for anything. . . . I do not receive a farthing for mentioning these things in the interest of the public. . . . I may say that Messrs. Lambert Pharmaceutical Co. of Listerine Products and the Messrs. British Organotherapy Co. Ltd. in recognition of the advantage to them of my personal recommendation have given donations to the work of the charitable society of which I am the President."

The naïve character of this statement and the numerous irrationalities that have been cited should indicate the uselessness of the volume.

[NOTE.—Books reviewed or mentioned on this page, other than those published by the American Medical Association, should be ordered from booksellers or direct from the publishers. They may not be ordered through HYGEIA or the American Medical Association.]

TEACHING UNIT ON GOOD HEALTH AND GOOD MANNERS

Pp. 24. New York: National Tuberculosis Association, 50 W. 50th St., 1936.

IF HEALTH teaching is to be effective it must be varied at different age levels so as to avoid the tiresome repetition which is so characteristic of much of our health education. The authors of this interesting pamphlet have developed with painstaking care this unit on "Good Health and Good Manners." It is divided into four sections dealing with Cleanliness, Sleep and Rest, Play and Food Habits. Four attractive posters in color suitable for hanging on the walls of the schoolroom accompany the text. The teaching material for each unit is organized under the following heads: Approach, Questions, Finding the Answers, Activities, Outcomes, Study Assignment, Completion Test and Reading References. Any teachers of third, fourth and fifth grades will be glad to have the four posters to brighten up their schoolroom and the teaching material in the booklet to help make the pictures vital in the lives of the children. Teachers should find this material extremely practical in guiding their pupils along the paths of health and manners.

J. MACE ANDRESS.

TRAIL BLAZERS OF SCIENCE

By Martin Gumpert. Translated from the German by Edwin L. Shuman. Price, $2.50. Pp. 306. New York: Funk & Wagnalls Company, 1936.

TEACHERS of hygiene in secondary schools and colleges will find about half of the ten well written biographies in this book valuable as references. It is the aim of the author to present the life stories of some half-forgotten pioneers of modern research. Among them are Vesalius, the founder of anatomy; Servetus, the discoverer of the minor circulation of the blood; Jackson and Morton, the discoverers of ether as an anesthetic; Pettenkofer, the founder of modern hygiene, and Harvey Cushing, the brain surgeon, a type of the future scientist.

It is unfortunate that the author should state in his preface that the biographic studies of these ten men of science prove the "ineradicable opposition to genius." There is nothing, for example, in the life of Harvey Cushing to support this view; nor would there be anything in the careers of men like Marconi, Osler and Banting to support it.

J. M. A.

FROM MORNING TILL NIGHT

By W. W. Charters, Dean F. Smiley and Ruth M. Strang. Price, 60 cents. Pp. 146. Illustrated. New York: The Macmillan Company, 1936.

FIRST grade pupils will find this book to be an interesting and instructive primer, and their teachers will discover a scientific arrangement of words and ideas that will dovetail with the approved course of teaching for children of that age. The instruction is by reading, by activities and by visual aids provided by the color illustrations. There are practice exercises which serve as summaries and reviews and which also give emphasis to the health habits studied in the main body of the text. The correct mental attitudes regarding health and the formation of the proper habits are all definitely encouraged by the stories and exercises in this book.

SIBYL L. WINSER.

QUESTIONS AND ANSWERS

Anemia in an Infant

To the Editor:—In December I had a baby which weighed 8¼ pounds at birth and was apparently healthy. He immediately lost a little, but in four days he had regained his birth weight. On the eighth day he developed a fever, which never ran over 100 F. It continued until the fourteenth day, when he died. On the tenth day it was decided he had pyelonephritis and anemia. He was given two blood injections and one transfusion, but he didn't pull through. An autopsy report said cause of death was bilateral acute pyelonephritis, marked anemia of unknown origin. When I left the hospital I had the infection, although I didn't have it on entering the hospital. What would you consider was the cause of this, and would it necessarily mean it would happen again? It was a breech birth.

Mrs. H. L. B., Connecticut.

Answer.—The conditions from which the baby apparently died are quite rare, and the cause is unknown. There is no reason for believing that the breech delivery could have any connection with the subsequent developments in the infant. Furthermore, there is no reason to fear the possibility of a similar condition occurring with any subsequent pregnancy or delivery. Owing to the fact a kidney or bladder disturbance followed delivery, another pregnancy should of course be avoided until a perfectly normal condition has been attained.

Saline Injections in the Eye

To the Editor:—What is the object of saline injections in the eye? How successful are the results as judged by clinical tests, and approximately how long does it take to obtain results? A patient with a high degree of myopia with numerous vitreous opacities is taking injections in the affected eye once a week. His other eye, the right one, has a cataract and detached retina. He was advised to let this one alone.

M. H. R., New York.

Answer.—Oculists are still not agreed as to the value of saline injections in diseases of the eye. It is claimed that such injections alter the character of the ocular fluids most advantageously and that the redness and swelling of the eye that result from the injection cause fresh blood with nutritive bodies to be brought to the inflamed tissues. At the same time the influx of the new blood carries away the waste products of inflammation. However, these points have never been proved, and the majority of oculists find that the same results can be obtained by other means that are less violent or painful.

In the case of high myopia with vitreous opacities and a retinal detachment in the fellow eye, saline injections constitute a definite menace, as retinal detachment has been known to follow such injections.

Syphilis: Course of Arsphenamine for Protection

To the Editor:—A public health official once informed me that some degree of protection is offered against syphilis if the individual exposed is given a course of arsphenamine treatments following the exposure; however, he further stated that such treatment might only cover up the disease instead of actually preventing it. What degree of protection is offered against syphilis by proper prophylactic measures taken immediately after contact with an infected individual?

E. W. G., California.

Answer.—The prevention of syphilis by means of treatment with arsphenamine given shortly after exposure rests on extremely doubtful grounds. It is entirely possible that such treatment might only cover up the disease instead of actually preventing it. Prophylaxis, utilized within one hour after exposure, is about 99 per cent efficient. To be successful it must be applied as promptly as possible after each exposure.

Congenital Malformations

To the Editor:—My son, 6 years of age, has an undescended testicle. One physician suggested that a certain type of serum be used to correct this condition so that surgery will not be necessary. Some say it is unsuccessful, others say it is expensive and results are doubtful. The boy would probably be said to have underdeveloped sexual glands. Might there be danger later of an overdeveloped sex nature?

L. W. B., Iowa.

Answer.—Until recently only two methods were available for treatment of maldescent of the testes; namely, surgery and waiting for unassisted descent. Now there has been added a third possible method: the administration of a pituitary-like substance. If the maldescent of testes is due to purely mechanical factors, administration of such substances as glandular extracts can have no effect.

The recent reports in medical literature show that the administration of a substance that is pituitary-like in character has had some degree of success. The best age for such administration is between 12 and 14 years because of the normal developmental process occurring at this time.

The dosage and duration of treatment are dependent on the degree of underdevelopment or degree of maldescent present. It must also be remembered that testes may descend normally during puberty. The use of such substances to bring about the descent of testes has not produced an overdeveloped sex nature.

These articles describing this treatment are available to physicians in the medical literature. They are written in technical language intended for the physician, and it is impossible for the nonmedical reader to interpret them.

If you have a question relating to health, write to "Questions and Answers," HYGEIA, enclosing a three-cent stamp. Questions are submitted to recognized authorities in the several branches of medicine. Diagnoses in individual cases are not attempted nor is treatment prescribed. Anonymous letters are ignored.

WINTER weather brings colds, grippe, and other illnesses ... taxes the resistance of even the most robust. But instead of being resigned to possible sickness this winter, take the best precaution to safeguard yourself against it . . . Visit your physician now for a complete check-up.

Because of the prevalence of respiratory ills during these cold, unsettled months, the condition of the sinuses and chest particularly should be known . . . X-ray examination is essential if there is the slightest question, because it is a means of disclosing information not obtainable in any other way. And if there are physical symptoms that point to an unhealthy condition of the heart, digestive tract, gall-bladder, or other organs, radiographs of the suspected region are equally important.

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Can you RELAX?

PERHAPS, at this moment, you are frowning or hunching your shoulders, clenching your hands or holding your neck stiffly. Do you notice any physical strain? Now let the muscles go limp for just three minutes and notice how much "smoother" you feel.

When the muscles relax, the nerves to and from those muscles are relieved of tension and get much needed rest. If you are nervous and high-strung, the chances are that some of your muscles are tightened and are wasting your nervous energy.

In this high-speed age, "nervousness" is becoming more and more common. Too many people work, play, travel—even sleep—under tension. They pay little attention to fatigue until they near exhaustion.

You may not realize what a severe toll tightened nerves will take. Long continued high tension is often associated with high blood pressure, heart symptoms, intestinal disorders, insomnia or nervous irritability. One of the first signs of nerve tension is irritability, most likely to occur during the years when you strive with all your might to reach your goal.

Some persons can relax naturally, but for the majority it is an ability to be acquired only by practice. If you are one who cannot relax easily, try lying down regularly each day and train yourself in relaxing groups of muscles—those of the hand, arm, or face—until you can relax the entire body. When not called upon to work, every one of your muscles should be thoroughly relaxed.

Muscular and nervous tension can in many cases be overcome by a hobby or some healthful game, or by sufficient rest or massage. Warm baths may be helpful. But if, despite your best efforts, you are unable to relax, see your doctor. Most likely he will soon find the cause of your difficulty and start you on the road to better health.

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SCHOOL AND HEALTH

(Continued from page 1036)

lively lines, strong lines in people, animals, birds, trees, plants, water, clouds, sailboats, airplanes, automobiles, in everything that grows and in well designed man-made things. There are lines of fun. Can we find them? Smile. Look in a mirror at the line where the lips meet. There is a line that smiles. Has a dog such a line? Is it at his mouth? Where is it? Of course, it's his tail. Try to draw it."

Note the loveliest thing seen through the window in the morning and the evening. From which window in the schoolroom can the best picture be seen?

A survey of the occupations of fathers shows our close relation to grocers, fruit men, garage attendants, truckmen, florists, real estate agents and many other occupations and professions. These workers are all interested in keeping well, and in addition they are interested in us. They pay to keep our school. Can we help them by anything we can make? "Tom, your father keeps the grocery store at our corner. Do you think he will be willing to use a poster that we made if it advertises something he has to sell? Let's try it. First decide on the health idea. The discussion of its wording will be our English lesson. Then we'll ask the art teacher to help us with the drawing and design." This plan was tried in a fifth grade. The idea was to advertise apples. "Let's have a whole apple year, showing the tree in spring, summer, autumn and winter." There is work in that for the English, art and health classes. "We are now designers. Designers always work with definite limitations, and these are ours: 1. The paper must be vertical. 2. It must be a usable size. 3. The tree as hero must occupy the largest space. 4. The slogan may use three words only.

The order of procedure will be: 1. Make experimental sketches to recall what we know about the characteristic growth and shape of apple trees, embodying their appearance at different seasons. 2. Exhibit and discuss these. 3. If uncertain about any necessary thing we can study real trees, if possible, or look at good photographic representations. (Never copy such pictures. Study them to learn characteristics of form, structures, shape and color.) 4. After the tree is drawn, consider a possible background. Again make trial sketches, exhibit, discuss, do more looking and redraw if necessary.

Then comes lettering. After discussing the type of letter required,

make a few trial attempts within the space limitations. When satisfactory, transfer to the finished poster. Letters may be cut and used as patterns. Although this is often a long process, it is usually worth while. Education takes time.

Is there anything in the world more tempting than a dish of red apples? "I wonder whether the hundreds of baskets of fruit made of colored paper or crayons in the schoolrooms have helped to develop the keen observation which sees beauty of form and color. How can this overworked device add to the permanent values of education? We might try this way: 1. Choose from actual or pictured containers one that is useful and beautiful. This is an exercise in art appreciation. 2. Cut this object from drawing paper. 3. From papers of appropriate color select one for the container. This is an exercise in color harmony and design. The container must be right for the fruit. It must be subordinate to the fruit and so help to show its beauty. The dish must not be too bright; it may be the same color, or it may be a contrasting color. We must experiment by trying the colors with the fruit. Never force a decision. If any or all of the children, after having seen the various combinations, still think they prefer one that the teacher does not enjoy, she should let them have it.

The leader of the group should always do the problem. Hers may be the only really lovely container. If all are exhibited for a day or two and the children are again asked to choose one that they have enjoyed that may be the one selected. Beauty is contagious. Next comes the study and cutting or drawing of the fruit. This is an exercise in seeing shapes, sizes and proportions. Finally, for adopting the color the best way is to draw directly with color.

Cut out the shapes. Try arranging them in the container. Some teachers show children an actual dish of fruit beautifully arranged and pictures of fruit arrangement. These are discussed for the purpose of learning how and why the artist or designer placed things as he did.

Arranging fruit or flowers is an everyday home problem in interior decoration. What do we try to do with such an arrangement in an actual home? It is an attempt to find the background against which it will show to advantage. How can this be carried out in school? Large sheets of colored paper ranging from light to dark through the colors of the spectrum are placed before the group. Each tries to find the one against which his pic-

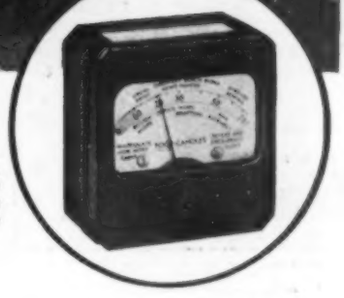
RESEARCH REVEALS

IMPORTANT FACTS

RELATING LIGHT AND SEEING

● *The man, with the aid of a Visibility Meter, is measuring the visibility of shorthand notes.*

● *The G-E Light Meter, modern scientific instrument designed for popular use, measures light as simply as a thermometer measures temperature.*



ACCURATE measurements of visibility coupled with accurate measurements of light are required to appraise conditions for seeing. The Visibility Meter and the Light Meter, used in the above illustration, were developed at the research laboratories of General Electric for making these measurements. Here are a few facts revealed by these instruments:

1. That shorthand characters in pencil require four times as much light to be as visible as typewritten characters.

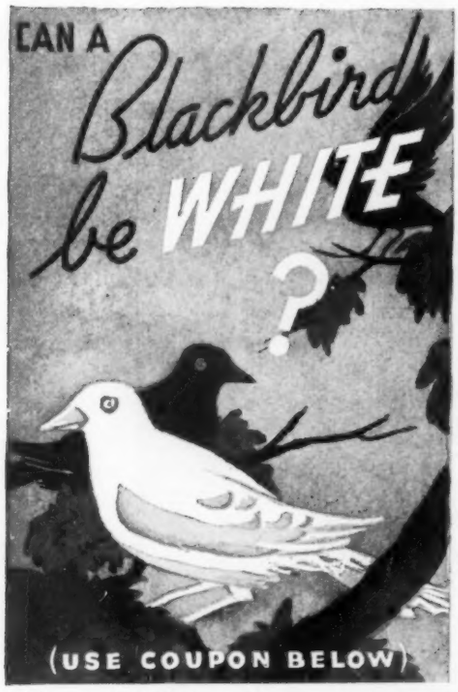
2. That 6-point type requires about 3½ times as much light to be as readable as 12-point type.

3. That handwriting in pencil requires nearly five times as much light to be as readable as handwriting in ink.

4. That stock market quotations in a newspaper require nearly three times as much light to be as readable as words printed in the same size of type.

Everyone interested in better sight should be sure to have his eyes examined by a competent eyesight specialist and should have his home lighting checked by a home lighting expert. General Electric Company, Dept. 166, Nela Park, Cleveland, O.

GENERAL ELECTRIC



●Yes! Such freaks or albinos do occasionally occur.* And a woman's skin can be *white* and *free* of *chapping* all winter long, also, by using ITALIAN BALM, regularly each day. Italian Balm spreads *widely*—lasts surprisingly long—saves your purse. Try it at Campana's expense—then *you* be the judge! Mail the coupon for FREE bottle *today!*
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ture looks best. If practicable the picture may be pasted on the background selected. The essentials of this problem may be used from the kindergarten through high school. The proportion of work will vary with the age. In the kindergarten the containers and fruit might be prepared by others. The value of the project lies not in the technical work, for it is not training in skill, but in the development of good taste.

Not all that is old is wrong. Not all that is new is good. All education, whether emphasizing art, health or other subjects, seeks to select from old and new that which is good. It seeks to present the same old truths in ways that stimulate and hold interest and to insure a fuller appreciation of the goal sought and a better understanding of the methods that are used.

FRAUDULENT PRACTICES IN USE OF SALAD OIL ARE UNCOVERED

"Test tube" detectives of the Food and Drug Administration, U. S. Department of Agriculture, have uncovered another olive oil "racket" in which salad oil racketeers were using refined tea-seed oil, a cheap substitute for the more expensive olive oil.

Tea-seed oil is pressed from the nut of a plant of the same family, but not the same variety, that supplies the tea of commerce. The oil is imported from the Orient for use in paint and textile trades. It resembles olive oil in practically all respects, except flavor and aroma, and answers to all recognized tests for olive oil.

Although substitution was suspected for some time, the officials had no way to prove adulteration until they developed the color test, in which organic chemicals and sulphuric acid mixed with tea-seed oil give a striking red color. None of the other oils, such as those of corn, sunflowers, peanuts, olives, soybeans or cottonseed, gives this reaction.

Since the test was developed, more than 50,000 containers of adulterated oil have been removed by seizure action from the channels of distribution. Seizure of one shipment was contested in a federal court by the manufacturer, but the jury's verdict was in favor of the government.—*U. S. Dept. of Agriculture.*

Man can learn nothing unless he proceeds from the known to the unknown.—*Claude Bernard.*

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THE TEACHER AS COORDINATOR

The goal for every child is his own greatest possible happiness, and the main function of the primary teacher is to keep him happy, adjusted to his environment and to his school, secure in his social relationships and conscious of progress in his work, according to an article in *Childhood Education*.

The teacher can make and keep children happy by first of all keeping their parents happy regarding them. Parents cannot feel happy about their children if they are urged and pressed to do the seemingly impossible or provide the impossible. Nor can they feel secure unless they are given confidence in their own powers and in their methods of handling children. At least they must feel that they are masters of each situation. Therefore the teacher's first duty is that of reinforcing the confidence and reassuring the misgivings of parents.

Can the teacher, after the child enters school, make parents see that health activities are carried on in a subtle fashion so that the child plays, eats, sleeps and works for pleasure, not for health; that correctives are just as much correctives when they are in the form of a game or a party or a job as when they are in the form of a duty or a drug? The same devices, possibly the same methods, can be used, but the accent needs to be different.

"Pity the child who hops or skips just to correct flat feet, who plays out-of-doors just to work up an appetite, who turns somersaults to correct a sagging abdomen, who eats oranges for good teeth or cereals for constipation. Pity the child who thinks about himself or his condition. Children of today consciously working to achieve health will be the neurasthenics of tomorrow. Let us train a generation who will laugh at advertisements built on fear, a generation that will have natural health from pleasurable activities and good food, not an artificial health produced by vitamin concentrates and setting-up exercises."

The tragedy of the present time is the problem child—one who knows he is the center of attention because of some slight abnormality or deviation from the normal such as poor appetite, a fear complex or undue sensitiveness. Without question he needs help in overcoming his difficulty without emphasizing it in his mind as unusual.

If, for example, a teacher observes a child in her room who is failing to make friends with other children she may decide that he needs suc-

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LATER ON AT THE SMITH'S—
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SWELL
MAYBE I CAN BEAT DADDY!
ONE MONTH LATER
NOW FOR THE CHECK-UP! WHO HAS A PERFECT SCORE?
I HAVE 100%
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cess to develop confidence; so she gives him a job from which he will get the admiration of others. Friendships are built on admiration and respect.

Would a timely suggestion to parents prevent the hatred of school and the failure to adapt that undermines the child's courage and stability? Can the friendly teacher screw up her courage and be enough of a friend to tell the parents what is making this child withdraw into himself? Possibly children ridicule him for his pudginess, for his baby talk, for his lisp that this mother thinks is just too dear. It may be that he is avoided because he does not use a handkerchief when he should. Possibly the teacher knows that children have felt that he is not a suitable playfellow because his language is strong and forcible.

The parent has experience with but one, two or three children and tries to make them conform to what he or she thinks the school demands. The teacher can compare and analyze forty or more children each year and look at them objectively because she has no emotional bias to overcome. If she can diagnose symptoms before they become weaknesses; if she can suggest psychologic, nutritional, industrial or recreational correctives to be subtly applied; if she can coordinate the abilities, interests and urges of children and reassure parents, she will, though weary at night, have done a real job as a teacher.

FROM A WORTHY PLATFORM

The National Education Association believes that education is the inalienable right of every American; that it is essential to our society for the promotion and preservation of democratic ideals. Therefore the Association declares its convictions and challenges its members to leadership in attaining the objectives of this covenant.

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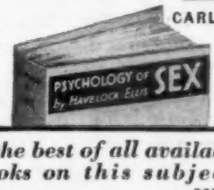

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(*b*) Socially desirable environment that will give a background of more fertile experience. The radio and motion pictures are of such momentous force in the life of the child that every effort should be exerted to continue the recent improvement of motion pictures and radio programs.

(*c*) Healthy minds and bodies that will strengthen the effectiveness of individuals as citizens.

The school should fight the evils of malnutrition, physical ailments and lack of physical comforts by securing adequate food, clothing and medical care through coordinated efforts of local, state and federal agencies for the children who are in need.—*Journal, National Education Association.*

SAVORY HERBS WINTER IN KITCHEN WINDOW BOX

Savory herbs growing in the garden may be brought indoors for the winter and planted in flower pots or window boxes in a sunny window, says a plant specialist of the U. S. Department of Agriculture.

During recent years there has been revived interest in aromatic herbs for flavoring soups, meat dishes and salads, and it is a great convenience to be able to pick a few savory leaves right in the kitchen. Mint, thyme, tarragon, sage, dill, chives, watercress and rose geranium are as popular today for flavoring as they were in colonial times, although not as much "store is set" by medicinal herbs now as then. Some of the herbs may be dried for winter use.

The best herbs to grow in a window are mint, watercress, parsley, chives, sweet marjoram, basil and rose geranium. They should be transferred indoors before freezing weather, into a soil consisting of one part sharp sand, one part well rotted cow manure, and two or three parts good garden loam. A small quantity of bone meal may be added. The soil should be mixed thoroughly and filtered through a coarse screen.

The window box should be at least 6 inches deep with an inch layer of broken stones on the bottom for drainage. One or two holes in the bottom will drain off surplus water. Flower pots should be at least 6 inches in diameter with bottom drains. The plants should not be crowded. They should be weeded frequently and watered a little every day. Turning the box or pots from time to time prevents the plants from growing one-sided.

—*U. S. Dept. of Agriculture.*

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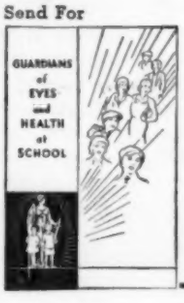

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Please send me, without cost or obligation, a copy of your booklet, "Guardians of Eyes and Health at School."

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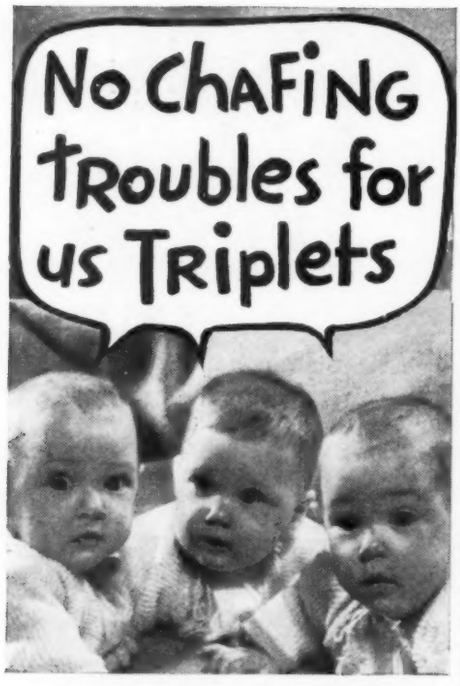

● The mother of Judith, Joanne and Jane is mighty proud of these healthy babies. "I've never had a bit of trouble with chafing or diaper rash with any of the triplets," she says. "I attribute that to my being extra careful about washing all their things. I know how safe Lux is for diapers as well as baby woolens and dresses."

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Health Publications

Send for a free catalog listing publications of the American Medical Association dealing with community health, personal hygiene and sanitation. Listed are posters, lantern slides, plays, lectures, pamphlets and other publications of interest to the public. Help spread the gospel of health in your community.

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PHYSICIANS PER CAPITA

In proportion to the total population, there are fewer physicians practicing in the United States today than there were twenty years ago, although in actual numbers there are now about 20,000 more legally qualified physicians in the country than were registered in 1916. In that year, according to the *Statistical Bulletin* of the Metropolitan Life Insurance Company, as interpreted and abstracted from the 1936 edition of the American Medical Directory, there was one physician for every 694 persons in the entire population; in 1936 there was one doctor for every 778 persons.

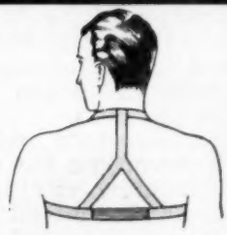
The data show that the proportion of physicians to the population steadily decreased until 1929, whereupon the rate began to increase. This statement applies particularly, with only minor variations, to the industrial states of the Northeast and to most of the Mountain and Pacific coast states. Apparently the diminished opportunities offered by the business world in recent years have caused a larger proportion of medical graduates to go into actual practice than was customary during the boom years following the World War, when a considerable number of graduate physicians were attracted into industrial and other fields where their medical training could be better capitalized. At least this seems to be true, in general, of the large centers of population.

According to the figures, medical practice in the rural sections, as a rule, still has little or no attraction for the newly graduated medical student. This conclusion is drawn from the fact that the states in which the greater percentage of persons live in rural habitations have a larger ratio of population to be treated per physician than do those states which are mostly urban. In other words the average physician in South Carolina has nearly three times as many prospective patients in his locality as has a doctor in California or New York.

"Of course, this does not mean, necessarily," the report states, "that the populations of these states suffer from less medical service, today than they had in 1916. The better roads movement, the increase and improvement in automobiles, the development of airplanes, together with the extension of modern hospital facilities to the rural regions, all enable the country doctor of today to attend to a much larger number of patients than was possible twenty years ago.

"Nevertheless, it seems that many newly graduated physicians are

The Kromer
SHOULDER BRACE



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The brace is all cloth, washable, sanitary, non-binding. Money back if not satisfied.

Price only 25 cents in all sizes for men, women and children. Ask your druggist or order direct, giving chest size.

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missing opportunities by preferring to locate in the large cities where the medical profession already is much overcrowded, rather than in certain smaller communities where the need of up-to-date medical knowledge is acute."

AN AVERAGE HEALTHY CHILD

A well baby has clear skin, bright, wide-open eyes, springy muscles and a contented expression. He cries only a little, has a good appetite, sleeps quietly with his mouth closed and has regular bowel movements. He shows no evidence of pain or discomfort, and he gains steadily in weight, height and ability to do things.

As a rule the baby doubles his birth weight by the end of the fifth or sixth month and trebles it by the end of the first year. During the third month he learns to hold up his head when his body is supported. From the third to the fifth month he usually begins to laugh aloud. At 7 or 8 months he may sit erect and soon will begin to creep. He begins to walk at 12 to 18 months. At 1 year of age he generally can speak a few words. Usually his first teeth appear when he is 6 or 8 months old. At 1 year he probably will have six teeth; at 1½ years, twelve, and at 2 years, sixteen. If your baby does not have these signs of health and normal development, tell the doctor.

Do not wait to consult the doctor until something goes wrong, however. You should keep your baby under the doctor's supervision from birth. A mother cannot recognize many early signs of trouble for she is not trained to do this. Perhaps she is too near the baby and sees him too often to realize that any change is taking place. The doctor, who sees the baby once or twice a month, looks at him with a trained eye and can see whether he is as rosy as usual or is getting a little pale; whether he is as active as he should be, or whether he shows other signs that may mean trouble later.

Weigh the baby once a week, at home, at the doctor's office or at a child health center. At least once a month, mother and baby should be seen by the doctor for general advice.—*The Children's Bureau, U. S. Dept. of Labor.*

Twins come once in 100 births —or perhaps it should be said in 101. Out of every 20,000 expectant mothers, 1 will be surprised by three arrivals.

A *Flexible* FOOT

A *Flexible* SHOE

Young feet are flexible and only flexible shoes can afford full freedom for natural, unrestricted development. Pied Piper Shoes are far more flexible because a patented process eliminates stiff fillers and provides permanent smoothness. Only in genuine

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If your druggist or department store cannot supply you, send 60c to us for INTRODUCTORY PACKAGE of 6 Standard Takamine Toothbrushes. (Reg. Price 2 for 29c.)
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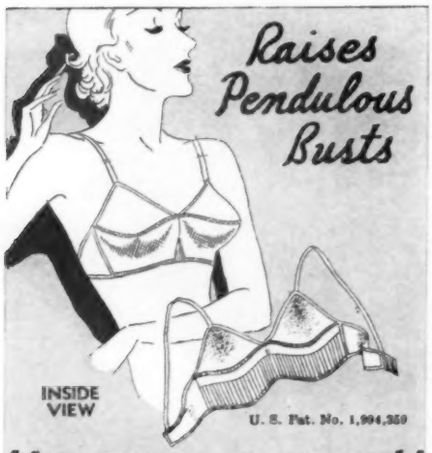

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Reg. App. For

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CRANBERRIES of CULTURE

for November Dinners

THE legendary origin of the name of that famous November fruit, the cranberry, is said to have arisen from the shape and appearance of its flower. The blossom looks for all the world like that long-legged inhabitant of watery places, the crane.

New Englanders, noting the similarity, affixed its name to the fruit of the blossom and called it the *craneberry.* It is recorded in the history of Massachusetts that the early colonists sent ten barrels of these luscious craneberries to their sovereign, Charles the Second. Thus, nearly 300 years ago, our forefathers gave testimony of their high regard for the vivacious berry that grew in the lowlands of Cape Cod.

Today, the original fruit has undergone something of a change in physical composition as well as in name. Almost imperceptibly it has become a lordly product demanding year-round care and attention. First of all, it must have the rich earth of low-lying land—Massachusetts, New Jersey and Wisconsin seem to provide the best—with ample water constantly feeding into it. Winter protection for the dormant seedlings and vines is necessary in order that the correct spring and summer cultivation may give it vitality and enhance its flavoring. Then in early autumn the harvest is made, and the markets begin to display these cranberries of culture.

Concoctions of cranberries furnish one of the most delicious garnishes imaginable; while shortcakes, salads, pies and puddings made of cranberries will add that final touch to a meal which is the achievement of a master chef. Here are some recipes that will add color and credit to your Thanksgiving dinner—or any dinner:

Cranberry Mousse

4 cupfuls cranberries
1½ cupfuls sugar
2 cupfuls water
Rind ½ lemon
Rind and juice ½ orange
⅛ teaspoonful salt
1 pint cream
1 ounce gelatin (4 tablespoonfuls)
½ cupful water

Cook cranberries in water until soft. Strain through a sieve. Add sugar, salt, orange juice, rind of lemon and orange and the gelatin which has been dissolved in ½ cupful cold water. When the mixture is cold combine with the cream, which has been whipped. Pour into a moistened mold. Set in refrigerator for 6 to 8 hours.

Cranberry Orange Relish

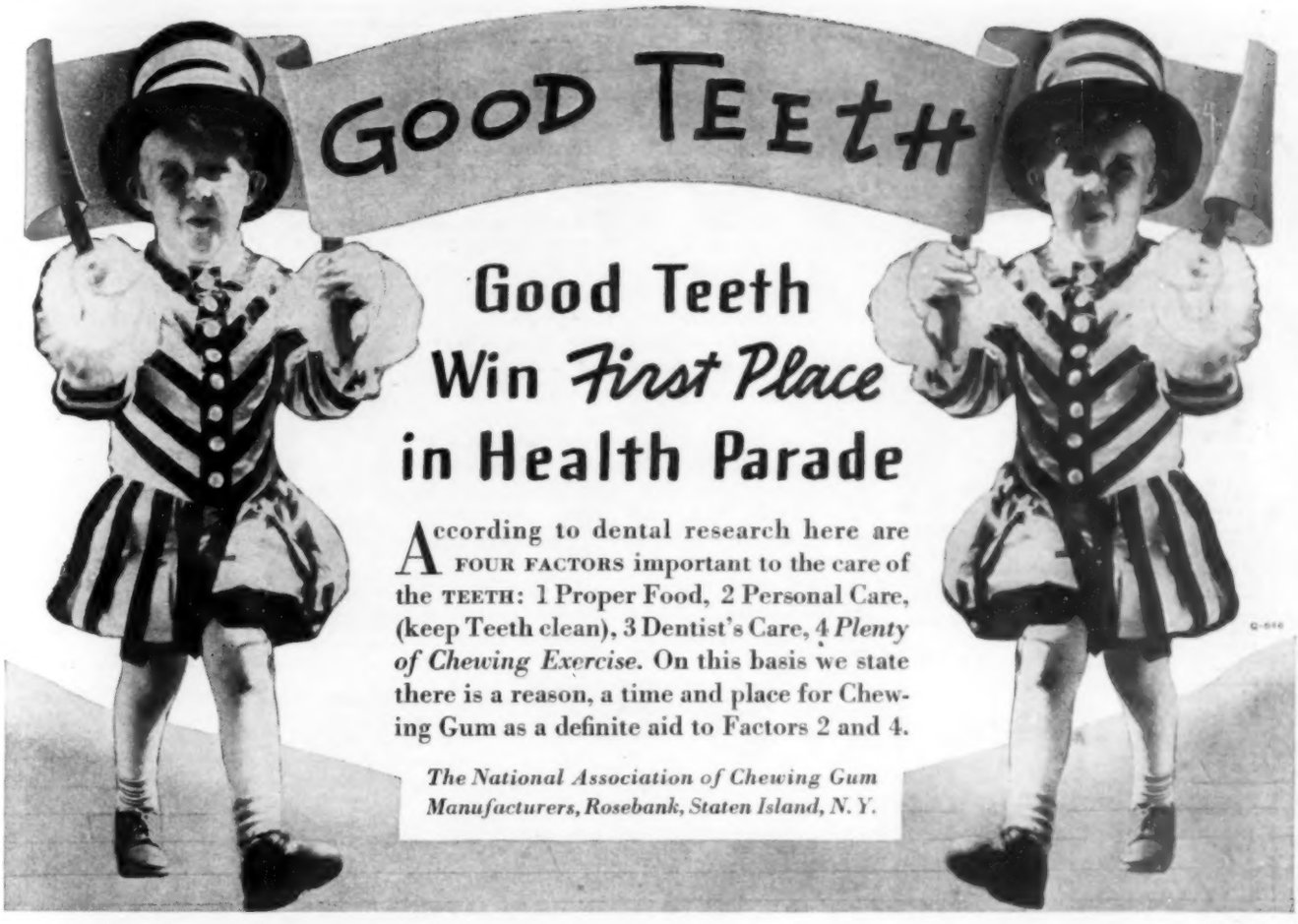
1 lb. (4 cupfuls) cranberries
1 to 1½ oranges
2 cupfuls sugar

Put cranberries through meat grinder. Pare orange with sharp knife; remove seeds; trim off white membrane, leaving the pulp exposed on the surface. Put rind and pulp through grinder, mix with sugar and berries. Let stand for a few hours before serving. For future use pour in glasses. Cover with paraffin.

Cranberry Jelly

Cook cranberries until soft, using 3 cupfuls water for each 8 cupfuls berries. Strain the juice through a jelly bag. Measure juice, and heat

(Continued on page 1054)



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According to dental research here are FOUR FACTORS important to the care of the TEETH: 1 Proper Food, 2 Personal Care, (keep Teeth clean), 3 Dentist's Care, 4 *Plenty of Chewing Exercise.* On this basis we state there is a reason, a time and place for Chewing Gum as a definite aid to Factors 2 and 4.

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Add Zest to Health Teaching

Sir Walter Raleigh discovered fire breathers here in America and, at once, aroused Europe's imagination and curiosity to explore and settle this continent. Hence, we have the United States. A little imagination mixed in with Health Teaching will kindle the children's interest to browse around into the facts of health, make health teaching a great deal of fun, and, incidentally, more fruitful in health-living results.

A Program for Health Education

The Joint Committee of the N. E. A. and the A. M. A. has compiled this program for the use of teachers in primary grades through high school and normal college. It lends itself well to the needs of teacher-training institutions. It is a source of constantly new ideas for health activity to the teacher of health. 1930 paper cover edition, $1.25; 1930 cloth cover edition, $1.75.

PAMPHLETS

Send to the American Medical Association for pamphlets and charts on all important phases of health activity—disease prevention (typhoid, scarlet fever, smallpox, diphtheria, etc.), infant welfare, diet, exercise, patent medicines. A catalog of published pamphlets will be sent free upon request.

PLAYS

These Plays, containing real health lessons give young pupils a chance to act out health ideas, to feel that good health is real. They make capital health activities.

The Good Health Elves.—17 to 25 characters. Set of 17 copies, $2.00. Single copies, 15 cents each.

The Trial of Jimmy Germ.—8 characters. Set of 8 copies, 35 cents. Single copies, 10 cents each.

The Friendly Brushes.—11 characters. Set of 11 copies, 50 cents. Single copies, 10 cents each.

The Magic Fluid (Diphtheria Antitoxin).—8 characters, with chorus, "King's subjects," etc. Set of 8 copies, 35 cents. Single copies, 10 cents each.

The School Lunch Room.—11 to 20 characters. Single copy, 10 cents; set of 10 copies, 45 cents.

Descriptive list of 12 plays is given in the catalog.

A Book of Health Stories

"The New Healthyland" is a compilation of stories, plays, poems and puzzles, and health letters taken from a 3-year issuance of HYGEIA, the Health Magazine. The stories and plays, with their health lessons will appeal to the imaginations of children in the grades. Bright pictures, colorful cover and clear large type makes this book instantly attractive. There are 168 pages, size 8½ x 11½, price, $1.00.

Free to Teachers

"Health Teaching Plans from Hygeia"—a 48-page booklet presenting 27 concrete health teaching plans other teachers have used and found practical. These projects which are suitable for kindergarten, grades and high school, have been reprinted from Dr. J. Mace Andress' Department, "Health and the School," appearing in HYGEIA each month.

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that just before and after baby arrives it is important to give the breasts the upward converging control obtained only by the Patented A.P. Uplift, designed by Mme. Poix. Prescribed extensively and used by Hospitals and Maternity Centers.

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Shop through the advertising pages of HYGEIA. A little head work may save a lot of footwork.

ORIGIN OF LINEAR MEASUREMENTS

Linear standards originated naturally from parts of the human body, it is revealed in the *Monthly Bulletin, Indiana Division of Public Health.*

The length of the forearm, breadth of a finger, length of the foot, the length of the two arms outstretched and others were used in early recorded measurements.

A cubit, the first known measurement, was the length of a forearm from point of elbow to end of the middle finger, or about 20 inches. The symbol of the cubit was the figure of a forearm. There were various cubits differing somewhat in length, but two were of outstanding importance: the Royal Egyptian cubit, averaging 20.62 inches, and the Olympic cubit of 18.24 inches. Today we recognize the cubit as being a measurement 18 inches in length.

The digit was the breadth of a finger. In the sixteenth century the lawful rod was the length of the left feet of sixteen men lined up as they left church Sunday morning.

At an earlier date, two thirds of the Olympic cubit became the "foot," which was divided by the Greeks into 12 thumbnail breadths. The foot unit passed to Rome and then to Britain, where its division of twelfths or "unciae" became "inches." In 1324, Edward II of Britain decreed that three barleycorns taken from the center of the ear, placed end to end, equaled an inch.

Under the Norman kings, half a fathom, or one arm outstretched from the middle of the body, was found to be a more convenient length particularly for measuring cloth, the most important article of trade. Henry I decreed the distance from the point of his nose to the end of his thumb as the lawful yard. Thus the yard of 3 feet arose, and a bronze yard bar was kept as the standard of reference in the king's exchequer, first at Winchester and later at Westminster. Only a few of these old exchequer standards have survived.

Queen Elizabeth's yard remained the standard from 1558 to 1824, when it was superseded by the Bird's standard yard of 1760, which was destroyed by fire at the Houses of Parliament in 1834. When the new imperial standards were completed in 1855 to replace them, two copies of the yard were presented to the United States, arriving in this country in 1856. Thus the British imperial yard of 36 inches was introduced into the United States and was adopted as the standard unit of measurement.

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PURE VANILLA

is made from sound sweet Vanilla Beans. You will find it imparts a delightful flavor. We will be glad to send you a sample.
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Golden State EVAPORATED MILK
California's own brand
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SAN FRANCISCO — LOS ANGELES

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HAVE YOUR DEALER SHOW YOU THE NAME
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WHEN HE CUTS YOUR ORDER

Saves Work for Mothers

Why go to the trouble of cooking and straining vegetables for baby when, for only a few cents a day, you can feed Gerber's Strained Vegetables? 9 foods to choose from. See page 1052.
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Church's Pure Natural Grape Juice •
made from properly ripened grapes. Contains no added sugar, water or other substance whatsoever.
Free from the excess acid of unripened fruit.
Church Grape Juice Company, Kennewick, Wash.

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Try Heinz Double-Sure Strained Foods for Baby

You know Heinz quality in foods. You can have this same high standard in strained foods for baby. Insist on Heinz. Send for valuable baby diet book featured on page 1055.
H. J. HEINZ CO., Pittsburgh, Pa.

Do You Know—

1. What reducing a fracture means? *See page 1005.*
2. What "quick-frozen" vegetables are? *See page 1014.*
3. Who discovered the cause of gonorrhea? *See page 1003.*
4. What the lack of vitamin C in the diet will do? *See page 1019.*
5. What a spirometer is used for at the present time? *See page 1012.*
6. What the claims for medical distinction of Italy are? *See page 1008.*
7. How many types of pneumonia there are? *See page 1021.*
8. The conditions under which tetanus bacilli will flourish? *See page 998.*
9. That in humid regions the young, whether human or animal, are smaller in size with lowered vitality followed by slower development? *See page 989.*
10. That the causative agent of meningitis when dried under a freezing temperature and kept frozen will remain alive for a number of years? *See page 1025.*
11. Whether or not bedbugs are universal? *See page 993.*
12. How to administer artificial respiration? *See page 986.*
13. What the Order of the Road is? *See page 978.*
14. What five good posture points are? *See page 970.*
15. Which one characteristic will do most for the child's proper personality development? *See page 974.*
16. What the psychologic value of occupational therapy is? *See page 967.*

Dr. Phillips
CITRUS FRUIT JUICES
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Dr. Phillips Orange and Grapefruit Juices and Grapefruit Hearts are uniformly rich in vitamin C and always full of flavor. Tree-ripened, they are canned fresh from the grove under the most modern scientific and sanitary conditions. Easy to serve at any time, anywhere. Get several cans today.
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C·H·B CALIFORNIA HOME BRAND
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Drink Krim-Ko* for Calcium
A delicious beverage, rich in bone and tooth building calcium. Children drink Krim-Ko without coaxing. See page 1053 for additional information on Krim-Ko.
* chocolate flavored, sweetened, partially defatted milk (added tapioca—salt).
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Prince VETARONI SOUP DOTS
The High Protein food

• There's never any coaxing or forcing with these strained foods. Baby takes them eagerly because they taste so good. Each of the nine tempting varieties is a choice food, properly prepared—rich in natural flavor. See page 1054.
STOKELY'S
THE STRAINED FOODS BABY REALLY LIKES

FOR YOU *and* YOUR BABY···

but our HOME-GROWN Vegetables Can Help You Both!

Let us save you the time and energy you'd spend in drudgery if you prepared your baby's strained vegetables! Let us help your baby—more than most market-bought vegetables could, because:

Gerber's are raised in selected soils, from pedigreed seed, under supervision; *sun-ripened* and picked just ripe; then—since *time* would steal special values—*rushed* to our kitchens, within one hour's trucking distance; cooked with air kept *out* and natural moisture kept *in*, retaining in high degree the precious vitamins and mineral salts.

Also, because packed so fresh, they are left *unseasoned*; you add salt and sugar at your doctor's wish.

See, too, if *you* don't think our Shaker-Cooking keeps colors natural, flavors *fresher!*

Gerber's

Shaker-Cooked Strained Foods

STRAINED TOMATOES, GREEN BEANS, BEETS, CARROTS, PEAS, SPINACH, VEGETABLE SOUP. ALSO, STRAINED PRUNES AND CEREAL.

Your Baby Hopes You Send For This Doll!

Just mail 3 Gerber Labels and 10c for boy or girl doll: Say which you choose. Doll is sateen, stuffed; sanitary, safe.
GERBER PRODUCTS COMPANY
FREMONT, MICHIGAN
(In Canada: *Grown and Packed by* Fine Foods of Canada, Ltd., Tecumseh, Ontario.) 1211

8 inch doll

NAME.....
ADDRESS.....STATE.....
CITY.....BOY.....GIRL.....
AGE OF BABY.....

"Mealtime Psychology"—a booklet on infant feeding also free on request. "Baby Book" on general infant care, 10c additional.

ELECTRICAL STETHOSCOPE IS INTRODUCED

The 3A electrical stethoscope is a device recently placed on the market which enables physicians to amplify greatly the patient's heart sounds. An important feature is its filter circuit that isolates and accentuates murmur sounds so significant and yet so difficult to detect with an ordinary acoustical stethoscope.

The equipment is in reality an amplifier with a special microphone which is applied to the patient's body over the heart. The faint impulses picked up by this device are fed into the small but powerful amplifier which magnifies these sounds to the desired degree. The output of the amplifier passes into a receiver arranged for attachment to the earpieces of the conventional type of stethoscope which the examining physician applies to his ears in the usual manner.

An additional receiver may be attached to the instrument, enabling two physicians to listen simultaneously from the same body location. The ordinary acoustical stethoscope ear attachment may also be connected to the receiver by means of rubber tubing so that the physician can listen to heart sounds in the familiar manner. The microphone is extremely unresponsive to extraneous sounds. A rubber ring surrounding the microphone also reduces to a minimum noises which may be caused by handling the instrument.

The loudness of heart sounds can be increased about 100 times, or 20 decibels more than the intensity obtained with an ordinary acoustical stethoscope. The microphone has a frequency range of from 60 to 1,500 cycles per second; this amply covers the frequency range of heart sounds.

One of the greatest values of this instrument will be found in examining persons who have thick chests where comparatively weak sounds are experienced. Other advantages are gained in making diagnoses in noisy places and in detecting abnormal heart conditions during their early stages.

Operation of the instrument is simple. The physician merely attaches the tube of his acoustical stethoscope to the receiver, clips the receiver to his coat and turns the volume switch until the desired loudness is reached. He presses the microphone lightly against the patient's body in the same manner that a conventional stethoscope is used. If a diagnosis of murmur sounds is desired, the knob marked "filter" is turned to its "in" position.

(Continued on next page)

If you enjoy good ginger ale, Cloverdale will bring you new delights in zest and refreshing qualities.

Made with the famous CLOVERDALE Pure Mountain Water Sparkling which comes from the lofty mountains of Pennsylvania. It is available as both Pale Dry and Amber.

If not on sale in your community, write for information

CLOVERDALE SPRING COMPANY
Plant: Newville, Pa. Office: Baltimore, Md.

What's in a Can of Canned Food?

Modern knowledge is shattering many false ideas about canned foods. Be sure to read the highly informative series of ads in HYGEIA on values of canned foods. See page 1056

AMERICAN CAN COMPANY, New York City

PLEASE SEE PAGE 961

RECIPES FOR YOU in every sack . . .

"15 Prize Recipes" and a folder of Betty Crocker's recipes in every sack of Gold Medal Flour!—See advertisement inside back cover for details.

●WHENEVER SODIUM BICARBONATE *is prescribed . . .*

Remember that either Arm & Hammer or Cow Brand Baking Soda are Sodium Bicarbonate, U. S. P. See page 1055 for details.

CHURCH & DWIGHT CO., Inc.
10 Cedar St., New York, N. Y.

WHITE BREAD

An interesting set of questions and answers in booklet form. A copy may be obtained free by request to the

AMERICAN INSTITUTE OF BAKING
1135 Fullerton Avenue . . . . Chicago

Mention HYGEIA when writing to Advertisers

The set is operated by six batteries contained in the lower part of the case, which is 12½ inches long, 8¾ inches high and 4¾ inches deep. It is 14 pounds in total weight.

INTERNATIONAL CONGRESS OF CHILD PSYCHIATRY SCHEDULED FOR NEXT SUMMER

An International Congress of Child Psychiatry will be held in Paris, France, July 24 to 28, 1937, immediately after the International Congress of Mental Hygiene. The congress will be in three sections, to each of which a subject is assigned. Many representatives from different nations will submit reports on each subject.

The sections with their respective topics are: (1) general psychiatry, the conditional reflexes in child psychiatry; (2) school psychiatry, methods of education conformable to the intelligence troubles and character of the child, and (3) juridicial psychiatry, mental debility as a cause of juvenile delinquency. Psychiatrists and educators in the United States have been invited to participate in the congress.

SIMPLE GOITER IS DUE TO LACK OF IODINE

Simple goiter is an enlargement of the thyroid gland, which lies in the front of the neck and normally is too small to be seen. The secretion of this gland is necessary for normal development, its important ingredient being iodine. If there is a lack of this substance in the body, the thyroid enlarges in its effort to secure it. Only an extremely small amount of iodine, ordinarily provided by nature, is needed to keep the thyroid supplied.

If the growth of a simple goiter is not checked it may cause serious complications and even require an operation. In some parts of the country, such as in the Great Lakes region, where iodine deficiency is known and where goiter is more common, iodized table salt is being widely used as a general goiter preventive. Other communities have been successfully using chocolate iodine tablets to prevent goiter among the school children.

Only a physician can tell the difference between a simple goiter and a toxic or poisonous one, and it is important that no form of iodine be taken until a physician prescribes it, because iodine might make the conditions of a toxic or poisonous goiter worse rather than better.

—*Bulletin, Milwaukee Health Dept.*

A New Kind of HOT CHOCOLATE

KRIM-KO gives you hot chocolate in a jiffy. No mixing, fuss, or adding of sugar. Just heat and serve. Krim-Ko has a great dietary advantage. The fresh milk from which it is made is *partially defatted.*

Tests have shown that Krim-Ko has a soft curd and leaves the stomach more quickly than either plain milk or chocolate flavored milk. For breakfast, or with other meals—for mid-afternoon or the "night cap"—recommend hot Krim-Ko.

Free Diet Information

Write for full details as to how Krim-Ko can be used for cases of milk refusing, milk "fussing," over-eating of sweets and in-between-meal feeding. Krim-Ko Company, 4830 S. Turner Ave., Chicago, Ill.

• *Krim-Ko is chocolate flavored, pasteurized, partially de-fatted milk (added tapioca, salt).*

KRIM-KO
REG U.S. PAT OFF
CHOCOLATE FLAVORED DRINK

DR. THURMAN B. RICE'S
Booklets on Sex Education

Parents, teachers, physicians—all who need material on sex education for children and young people—will find the help they are seeking in this sane series of booklets by Dr. Thurman B. Rice. He approaches the subject in a way neither ultra modern nor definitely old fashioned, and successfully combines the idealistic with the practical.

THE STORY OF LIFE—for boys and girls of ten years
IN TRAINING—for boys of high school age
HOW LIFE GOES ON AND ON—for girls of high school age
THE AGE OF ROMANCE—for young people of college age
THE VENEREAL DISEASES—for young people of college age

25 cents a copy

The entire set of 5 for $1.00
(Including special filing case)

ORDER FROM
AMERICAN MEDICAL ASSOCIATION
535 North Dearborn Street CHICAGO

CRANBERRIES OF CULTURE

(Continued from page 1048)

to boiling point. Add 1 cupful sugar for each 2 cupfuls juice. Stir until sugar is dissolved. Boil briskly for 5 minutes or until a drop jells on a cold plate. Pour into glass tumblers, porcelain or crockery molds. Cover with paraffin.

Cranberry Juice Cocktail

4 cupfuls water
4 cupfuls cranberries
⅔ cupful granulated sugar

Cook cranberries and water until all the skins pop open (about 5 minutes). Strain through cheese cloth. Bring the juice to boiling point. Add sugar and boil for 2 minutes. Serve cold. For future use put in sterilized bottles, well corked and sealed.

This is an excellent drink and can be served in a number of ways. Besides being very palatable as it is, it can be mixed with ginger ale or used as a base for fruit punches and fruit cups. For a large quantity, the method of preparation is the same, and the following proportions can be used:

20 pounds cranberries
5 gallons water
8½ pounds sugar

Cranberry Meringue Pie

1¾ cupfuls granulated sugar
¾ cupful cold water
4 cupfuls cranberries
2 tablespoonfuls flour
4 eggs
¼ teaspoonful salt
2 tablespoonfuls butter
1 teaspoonful vanilla
4 tablespoonfuls powdered sugar

Cook sugar and water to a syrup. Add cranberries and cook until they stop popping; cool a little. Mix the flour, salt and yolks of eggs until smooth; stir in 3 tablespoonfuls of the juice of the cooked cranberries; then add to the berries and simmer for 3 minutes. Stir in butter and vanilla, and set aside to cool. Turn filling into deep pie crust shell, previously baked; cover with meringue made from stiffly beaten whites of eggs and powdered sugar. Place in oven (325 F.) about fifteen minutes.

Baked Cranberry Pudding

2 cupfuls cranberries, cut in halves
½ cupful milk
½ cupful sugar
1 teaspoonful baking powder
¼ cupful butter
¼ teaspoonful salt
1 cupful flour

Cream butter, add sugar slowly. Sift together the dry ingredients mixed with cranberries. Add the milk to dry mixture. Bake about ¾ hour in a moderate oven (350 F.). Serve with sauce made as follows:

1 cupful brown sugar
1 tablespoonful flour
1 tablespoonful butter
⅛ teaspoonful salt
1 cupful water
1 teaspoonful vanilla

Mix together the sugar, salt and flour; add water and stir until smooth. Add butter; boil 5 minutes stirring constantly until thick. Then add vanilla.

Cranberry Ham Slices

3 cupfuls cranberries
1½ cupfuls strained honey
2 tablespoonfuls whole cloves
2 slices ham (¾ to 1 inch thick)

Mix cranberries and honey. Gash edges of fat on ham. Place one slice ham in a baking dish. Spread the center with a mixture of cranberries and honey. Top with second slice. Cover with remaining cranberry and honey mixture. Garnish with whole cloves. Bake until done in a moderate oven (350 F.) about 1½ hours, basting occasionally with liquid in dish.

Molded Strained Cranberry Sauce

4 cupfuls cranberries
2 cupfuls granulated sugar
2 cupfuls water

Boil cranberries with water until berries stop popping. Strain through fine sieve. Add sugar, and stir. Allow mixture to boil rapidly for 8 to 10 minutes or until a drop jells on a cold plate. Turn sauce at once into a wet mold, and cool.

Cranberry Ambrosia

2 cupfuls sugar
2 cupfuls cranberries
3 cupfuls water
2 oranges (sliced)
2 apples (cut in eighths)

Boil sugar and water together for 5 minutes. Add sliced apples and cook slowly for 15 minutes. Add cranberries and oranges. Cook for 10 minutes longer. Serve cold with meat or poultry, or as a dessert.

Cranberry Maraschino

Large cranberries split in half
1 teaspoonful almond extract
Sugar
Water

Wash as many seeds out as possible. Make a syrup using a scant cup of sugar to every full cup of berries and as little water as possible. When syrup reaches the boiling point, drop in berries and boil from 5 to 10 minutes. Add almond extract. Drain on wax paper and allow to cool. Serve as candy or as garnish for meats or salads.

Every mother knows the protection a good fever thermometer can give her baby's health. No mother wants to be without one. Yet they're expensive and often broken. Here's *your* chance to get a regular $1.25 certified thermometer made by Faichney, Watertown, N.Y., on a special limited offer. Simply send 12 *labels from STOKELY'S STRAINED FOODS and 25c to Stokely Brothers & Company, 2351 South East Street, Indianapolis, Indiana.* Your thermometer will be sent to you immediately—postage prepaid.

REMEMBER MOTHER! There's no fussing or fretting when Stokely's are on baby's menu. Baby takes *these* strained foods eagerly; they taste so good. Nine tempting varieties—each prepared to retain natural flavor and food value. Smoothly strained to be readily digestible. Packed in golden enamel lined cans, ready to heat and serve. ASK YOUR DOCTOR.

HEALTH PLAYS

Reprinted from HYGEIA

The Trial of Jimmy Germ.—8 characters. Set of 8 copies, 35 cents. Single copies, 10 cents each.

On Board the S.S. Health.—20 characters; time, 10 minutes. Set of 20 copies, $1.00. Single copy, 10 cents.

The Good Health Elves.—17 to 25 characters. Set of 17 copies, $2.00. Single copies, 15 cents each.

The Gift a King Accepts.—15 characters. Set of 15 copies, $1.10. Single copies, 10 cents each.

The Friendly Brushes.—11 characters. Set of 11 copies, 50 cents. Single copies, 10 cents each.

The Magic Fluid (Diphtheria Antitoxin).—8 characters, with chorus, "king's subjects," etc. Set of 8 copies, 35 cents. Single copies, 10 cents each.

Send for free catalog describing other health material

HYGEIA

535 North Dearborn Street **CHICAGO**

MAYBE baby can't talk yet, but give him Heinz Strained Foods and you'll see that he knows his groceries. For it does seem that even the smallest children prefer the *taste* of Heinz Strained Foods! You yourself probably prefer the fine "home" flavor of Heinz-made foods—soups and oven-baked beans and all the other 57 Varieties. It's natural for baby to like the same *quality* in foods that tempts your appetite! Give him Heinz Strained Foods—they cost no more and they're *safe!*

11 KINDS — 1. Strained Vegetable Soup. 2. Peas. 3. Green Beans. 4. Spinach. 5. Carrots. 6. Beets. 7. Prunes. 8. Cereal. 9. Tomatoes. 10. Apricots and Apple Sauce 11. Mixed Greens.

Child problems, homemaking, music and drama are features of *Heinz Magazine of the Air*, new half-hour radio program broadcast Mondays, Wednesdays and Fridays 11 a.m E.S.T Columbia Network. Listen in.

HEINZ 57
STRAINED FOODS

Dental Hygiene Pamphlets

Our Food and Our Teeth, by Percy R. Howe. 4 pages. **5 cents.**

Common Sense in Mouth Hygiene, by William M. Gardner, D.D.S. A study showing why the toothbrush has failed. Improper methods of brushing the teeth, the importance of applying pressure and proper toothbrushes and dentifrices. Illustrated. 18 pages. **15 cents.**

Pyorrhea, by Robert H. Brotman. 2 pages. **5 cents.**

The Effect of Teeth on Facial Expression, by Robert H. Brotman. 2 pages. **5 cents.**

The Teeth of the School Child, by C. N. Johnson. 4 pages. **5 cents.**

Taking the Child to the Dentist, by William M. Gardner. 4 pages. **5 cents.**

American Medical Association
535 N. Dearborn Street Chicago, Ill.

STUDENT HEALTH RESEARCH PROJECT TO BE CONDUCTED

A college student health research project will be conducted this year by the American Youth Commission of the American Council on Education, it has been announced by Dr. Homer P. Rainey, director. Dr. Harold S. Diehl, dean of the medical sciences of the University of Minnesota, and Dr. Charles E. Shepard, director of the Men's Student Health Service at Stanford University, will direct the research.

In the first stages of the program, Drs. Diehl and Shepard will attempt to find out the types of health data that are available in all the American colleges and universities, after which they will gather personal data on 25,000 or more students in some seventy-five of the colleges in all parts of the country. The data will be analyzed next summer.

Through cooperation with the National Youth Administration the American Youth Commission administrative staff has arranged for graduate students to assemble the information from the records of individual students. In all cases the local research will be under the supervision of the health officers in the colleges.

The health of college students is naturally expected to be better than that of many other groups. Consequently, information will also be gathered on young people in different social and economic levels.

The Youth Commission is a nongovernmental agency, financed by a private foundation, and it is set up to make a five year study leading to a program for the care and education of American youth.

Heart disease means sudden collapse in only a few instances. Much can be done to help the cardiac case. The doctor will prescribe the limits of activities. If every well person at 40 years of age took such advice, there would be fewer deaths at 50.

SAFER NIGHT DRIVING

To get the maximum amount of light, reflectors and lenses should be cleaned twice a year. Such cleaning may increase the amount of light from 40 to 130 per cent.

Beams should always be depressed when meeting other cars. This minimizes glare and increases safety.

The faster we drive at night, the greater is the need for more light.

—*Public Safety.*

OUR BAKING SODA IS SODIUM BICARBONATE U.S.P.

▼

SODIUM Bicarbonate is prescribed by physicians in the treatment of many pathological conditions. It is perhaps as frequently used as any other drug.

So it is well to keep in mind that two familiar old products that have been standbys in American homes for generations can be used with confidence whenever the diagnosis calls for Sodium Bicarbonate dosage or application—Arm & Hammer and Cow Brand Baking Soda which are both pure Sodium Bicarbonate — classified as such by the Council on Pharmacy and Chemistry of the American Medical Association.

These two widely known brands are identical and are obtainable almost everywhere in handy sealed containers at very low cost.

Their uniform purity, dependability, availability and economy commend them for use whenever Sodium Bicarbonate is prescribed.

Business Established in 1846

Church & Dwight Co., Inc.
10 Cedar St., New York, N.Y.

WEIGHING-IN

for the battle of life . . . .

JUDGING this young battler on looks alone, we'd say the odds were heavily in his favor. Especially with such a trainer as mother! For who, more than she, is responsible for the good health of that 23-pound bundle of boy?

By her knowledge of proper food requirements, she's seen to it that he derived an abundance of vitamins and minerals. And canned strained baby foods, recommended by doctor, have helped immeasurably. For canned *baby* foods, like *all* canned foods, are sealed-cooked—cooked in the can after sealing—a process that greatly conserves important vitamins and minerals.

Minerals, for instance, that are soluble in water can be lost in the home method when the cooking water is poured away. But, in canned foods, only a limited amount of water is used, and these minerals are thus retained within the can.

ACCEPTED AMERICAN MEDICAL ASSN

The Seal of Acceptance denotes that the statements in this advertisement are acceptable to the Council on Foods of the American Medical Association.

Home Economics Department

AMERICAN CAN COMPANY

230 Park Avenue CANCO *New York City*